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Before the Committee on Appropriations

Energy and Water Development Appropriations

Fiscal Year 2013

112*th* CONGRESS, SECOND SESSION

H.R. 5325/S. 2465

DEPARTMENT OF DEFENSE—CIVIL
DEPARTMENT OF ENERGY
DEPARTMENT OF THE INTERIOR
NONDEPARTMENTAL WITNESSES

Energy and Water Development Appropriations, 2013 (H.R. 5325/S. 2465)

S. HRG. 112–839

ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR FISCAL YEAR 2013

HEARINGS

BEFORE A

SUBCOMMITTEE OF THE

COMMITTEE ON APPROPRIATIONS

UNITED STATES SENATE

ONE HUNDRED TWELFTH CONGRESS

SECOND SESSION

ON

H.R. 5325/S. 2465

AN ACT MAKING APPROPRIATIONS FOR ENERGY AND WATER DEVELOPMENT FOR THE FISCAL YEAR ENDING SEPTEMBER 30, 2013, AND FOR OTHER PURPOSES

Department of Defense—Civil
Department of Energy
Department of the Interior
Nondepartmental Witnesses

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ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR FISCAL YEAR 2013

WEDNESDAY, MARCH 14, 2012

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, DC.

The subcommittee met at 2:31 p.m., in room SD–192, Dirksen Senate Office Building, Hon. Dianne Feinstein (chairman) presiding.

Present: Senators Feinstein, Murray, Johnson, Reed, Tester, Alexander, Cochran, Collins, Murkowski, and Graham.

DEPARTMENT OF ENERGY

OFFICE OF THE SECRETARY

STATEMENT OF HON. STEVEN CHU, SECRETARY

OPENING STATEMENT OF SENATOR DIANNE FEINSTEIN

Senator FEINSTEIN. Good afternoon, ladies and gentlemen.

Mr. Secretary, welcome to the Energy and Water Subcommittee's budget hearing on the Department of Energy's (DOE) fiscal year 2013 budget request.

DOE has requested $27.2 billion for fiscal year 2013. That is an increase of $1.5 billion, or 5.7 percent, from fiscal year 2012.

Approximately $535 million—that is about one-third—of the $1.5 billion increase is for the National Nuclear Security Administration's (NNSA) nuclear weapons nonproliferation and naval reactor programs. This is a 5-percent increase. The subcommittee will explore NNSA's budget request with Administrator D'Agostino next week.

The rest of the Department's proposed increase is largely, as we understand it, for the Office of Energy Efficiency and Renewable Energy (EERE) projects, Advanced Research Projects Agency-Energy (ARPA–E), and basic energy research.

The budget request clearly prioritizes some programs while making difficult choices to cut funding to other programs. This is where we have a lot of questions. The Congress must now determine whether or not we can agree on those priorities.

Mr. Secretary, I hope you will highlight the administration's priorities today and make the case for the choices that you have made.

I would like to highlight the three largest increases in the budget.

First, the single largest increase would be for EERE which would see an increase of $512 million, or 28 percent. A significant portion of this increase would be used for the new advanced manufacturing program.

The second, ARPA–E, would see an increase of $75 million, or 27 percent. As the Secretary says, ARPA–E holds the promise of advancing high-risk, high-reward technology. An early indicator of success has been that 11 projects, which received $40 million from ARPA–E, have now secured more than $200 million in outside private capital investment to further develop these technologies, and that is good news. So we would like to encourage the Department to continue tracking these projects and demonstrate how Federal investments have developed more energy-efficient technologies and potentially new industries.

Third, the Office of Science would see an increase of $118 million, or 2.4 percent. The science budget has clearly prioritized the subprograms exploring materials research, advanced computing, and biological research. So the Department is making its priorities clear there.

However, in the non-priority subprograms, it is more difficult to understand the administration's position because the Department has failed to prioritize activities within the very limited funding.

One example is fusion energy science. The overall budget for fusion energy science is not large enough to accommodate our commitment to the International Thermonuclear Experimental Reactor (ITER) project in France while at the same time maintaining our domestic program. The difficult decision was apparently made to cut funding to the fusion facility at Massachusetts Institute of Technology (MIT). The budget, though, fails to fully fund the commitment to ITER. This will likely increase our total contribution to ITER in the future and delay the project. I understand the decision not to prioritize fusion energy sciences in a tight budget environment, but if we are making that decision, then we need to follow through and make the tough decisions within the program itself and not leave them floundering around. It now appears that we are simply going to cripple both our domestic and international efforts.

While renewable energy, ARPA–E, and the Office of Science saw increases in the budget, there are two energy programs that were cut. The proposed budget for the Office of Fossil Energy (FE) is $428 million. That is a decrease of 20 percent, or $106 million. The single largest cut in fossil energy comes from zeroing out the fuel cells subprogram, and we would like to know the reason.

The proposed budget for the Office of Nuclear Energy is $675 million, excluding security costs. This is a cut of $93 million, or 12 percent. The major cuts in nuclear energy come from the advanced reactor program, which is largely focused on fast reactors and high-temperature reactors.

Today, I am sure we will hear various opinions about the decisions made in the administration's budget request for energy, but this is an important first step. I know the choices are difficult for you, Mr. Secretary. Before welcoming you and having your presentation, I would like to ask for the remarks of the ranking member.

STATEMENT OF SENATOR LAMAR ALEXANDER

Senator ALEXANDER. Thank you, Madam Chairman.

Mr. Secretary, welcome. It is a pleasure to work with the Senator from California always, and it is a pleasure to work with you, Mr. Secretary. We appreciate your service to the country. It is a long way to go home for you, I know. So we appreciate that. You have attracted some very good people to work with you.

There are a great many areas of the President's proposal, your budget, that I support. In a recent visit to Sandia, the science director told me that it would be hard to think of any major advance in the biological and physical sciences in our country that had not had some Government research support and most of it through our 17, I guess is the number, laboratories and our great research universities, which are in my view our secret weapons in a very competitive world economically where we are a country that has only 4 or 5 percent of the population but regularly produce 23–24 percent of the wealth. That is going to be harder and harder to do to keep our standard of living, and those will help us do that.

And your Office of Science is identified as an important part of our America Creating Opportunities to Meaningfully Promote Excellence in Technology, Education, and Science Act (America COMPETES) initiative which our Congress has passed in a bipartisan way and reauthorized in a bipartisan way and funded to a great extent over the last several years. And I am glad to see a priority there.

I applaud your energy hubs. We have talked about that many times before, but I was calling them mini-Manhattan projects and you are calling them hubs. I think it is a very good way to manage and to organize around priority areas. The idea of installed solar at a kilowatt hour with clear metrics about each of these areas—and I would be interested to hear from you, as we go along, what your metrics are for each of your hubs. In other words, how will we know when we succeed? And as my experience in Government teaches me, that is a pretty good way to take a big, complex program like you have and establish some clear priorities. So I would like to talk more about the hubs.

I am a strong supporter of ARPA–E, a major recommendation of the America COMPETES legislation, and we do not know if ARPA–E will be successful, but it would not have to be nearly as successful as the Defense Advanced Research Projects Agency (DARPA) to be a great success. It does not have the same kind of customer that DARPA has at the Defense Department. But the early signs are promising, very talented people there. And I hope we continue to support it.

I am increasingly of the view that—I support the idea and made an address last week saying that we should double over the next several years Federal support for clean-energy research. I know that is a priority of yours. The question quickly comes up, well, then how would you pay for it. I think the way we pay for it is get rid of long-term subsidies for energy such as those for big oil and I would add to that big wind. We had $14 billion of Federal subsidies for wind programs over a 5-year period which we are in the midst of. More than $6 billion are the production tax credit. I think

we should let that credit expire and take $2 of the savings and reduce the debt and $1 of the savings and add it to the energy research budget and do the same for the oil subsidies that oil companies have that other companies do not have. Sometimes we get a little clumsy when we talk about oil subsidies because they have manufacturing tax credits. Well, so do many other manufacturers have manufacturing tax credits. So I would like to talk about that too. Clean-energy research, yes. Long-term subsidies, no. And in between what are those technologies that we seek to jump start for a limited period of time? The small modular reactors might be one. The electric car incentives that we are now in the midst of might be one. ARPA–E might be one. But they should be specific and limited.

You have recommended funding for the Blue Ribbon Commission (BRC) on Nuclear Waste. That is a concern that Senator Feinstein and I share equally. My passion for it does not equal hers because I do not think anyone's does, but it is right up there with hers. And it is something that we are working on with Senators Bingaman and Murkowski, and we appreciate your cooperation on that. We intend to make some progress on it.

Finally, in our State, if I may make an additional point, Madam Chairman, we are concerned about environmental cleanup. Over the last year, the Government has made a lot of progress in cleaning up radiological waste in Oak Ridge that is left over from the hot war and World War II and the cold war ever since. And you have begun to remove the waste and get it out of Oak Ridge and the cleanup is scheduled to be completed in 5 years. And it is very expensive. It is hundreds of millions of dollars. And once it is gone, it will reduce the cost of operating the facilities in Oak Ridge and reduce the risks.

But we now need to go to work on mercury, and we have talked about that. To date, there are more than 2 million pounds of mercury unaccounted for and the continued releases of mercury in Poplar Creek that run through the town. This is a dangerous substance. It is going to take a long time to do an appropriate job of cleaning it up, but we need to get started. And I would like include in the record, Madam Chairman, an article by Frank Munger from the Knoxville News Sentinel today entitled "Mercury's Priority is Rising, but Cleanup is Years Away."

So I thank you for what we are doing on radiological waste. I look forward to working with you to getting started on cleaning up the mercury.

And I thank the chairman for her generous allocation of time.

Senator FEINSTEIN. I thank you very much, Senator Alexander.

It is now my pleasure to introduce the Secretary. He hails from my home State. I think it is fair to say he is brilliant. I do not think you win a Nobel unless you can have that appellation attached to your name. He is from Lawrence Berkeley Lab, and it is with a great deal of pleasure, because there will be a lot of hard questions, that I boost your ego a little bit before we begin.

I know it has been hard to adjust to life here, but we want to warmly welcome you, Mr. Secretary. Please proceed with your remarks.

SUMMARY STATEMENT OF HON. STEVEN CHU

Secretary CHU. Well, thank you, Madam Chairman, and also Ranking Member Alexander. I should say my reputation for intelligence has taken a downturn since I have accepted this job.

But in any case, I am happy to be here today and be given the opportunity to discuss the President's fiscal year 2013 budget request for DOE.

To promote economic growth and strengthen national security, President Obama has called for an all-of-the-above strategy that develops every source of American energy. The President wants to fuel our economy with domestic energy resources while increasing our ability to compete in the clean-energy race.

The Department's fiscal year 2013 budget request for $27.2 billion is guided by the President's vision, our 2011 strategic plan, and our inaugural quadrennial technology review. It supports leadership in clean-energy technologies, science and innovation, nuclear security, and environmental cleanup.

Decades ago, the Energy Department's support helped develop technologies that have allowed us to tap into America's abundant shale gas resources. Today, our investments can help unlock the promise of renewable energy and energy efficiency. The budget request invests approximately $4 billion in energy programs to advance progress in areas from solar to offshore wind to carbon capture utilization and storage to smart grid technologies. It develops next-generation biofuels, advanced batteries, and fuel-efficient vehicle technologies to help reduce our dependence on foreign oil.

As the President and I have said, there is no silver bullet. We can and must pursue a long-term, all-of-the-above approach that diversifies our transportation sector, protects consumers from high gas prices, harnesses American resources, and creates jobs here at home. That is exactly what this budget does.

The budget also invests $770 million to help develop the next generation of nuclear power technologies, including small modular reactors. It includes funding for continuing nuclear waste research and development (R&D) which aligns with the recommendations of the Blue Ribbon Commission (BRC) on America's Nuclear Future.

America's fossil fuel energy resources continue to play an important role in our energy mix. The budget request includes $12 million as part of a $45 million research and development initiative by the Departments of Energy, Interior, and Environmental Protection Agency (EPA) to understand and minimize the potential environmental, health, and safety impacts of natural gas development through hydraulic fracturing.

The budget also promotes energy efficiency to help Americans save money by saving energy, and it sponsors R&D on industrial materials and processes to help U.S. manufacturers cut costs.

To maximize our energy technology efforts in areas such as batteries, biofuels, and electric grid technologies, we are coordinating research and development across our basic and applied research programs and ARPA–E.

And to encourage manufacturing and deployment of clean-energy technologies, the President has called for extending proven tax in-

centives, including the production tax credit, the 1603 program, and advanced energy manufacturing tax credit.

As industry, the Congress, and the American people make critical energy decisions, it is also important that we adequately fund the Energy Information Administration.

Competing in the new energy economy will require our country to harness all our resources, including American ingenuity. The budget includes $5 billion for the Office of Science to support basic research that could lead to new discoveries and help solve energy challenges. These funds support progress in materials science, basic energy science, advanced computing, and more.

The budget request continues to support the Energy Frontier Research Centers which aim to solve specific scientific problems to unlock new clean-energy development. It supports the five existing Energy Innovation Hubs and proposes a new hub in electricity systems. Through the hubs, we are bringing together our Nation's top scientists and engineers to achieve game-changing energy goals.

Additionally, the budget request includes $350 million for ARPA–E to support research projects that could fundamentally transform the way we use and produce energy. ARPA–E invests in high-risk, high-reward research projects that if successful could create the foundation for entirely new industries.

In addition to strengthening our economy, the budget request strengthens our security by providing $11.5 billion for the NNSA. As the United States begins the nuclear arms reduction required by the New Strategic Arms Reduction Treaty (New START), the science, technology, and engineering capabilities within the nuclear security enterprise will become even more important to sustain the U.S. nuclear deterrent. That is why the budget request includes $7.6 billion for weapons activities. It also includes $1.1 billion for the naval reactor program. Additionally, it supports NNSA's work to prevent nuclear terrorism, one of President Obama's top priorities. It includes $2.5 billion to implement key nuclear security, nonproliferation, and arms control activities.

Finally, the budget request includes $5.7 billion for the Office of Environmental Management to clean up radioactive legacy waste from the Manhattan Project and the cold war. This budget request builds on the program's progress. By the end of 2011, the program has reduced its geographic footprint by 66 percent.

PREPARED STATEMENT

The budget request made strategic investments to promote prosperity and security. At the same time, we recognize the country's fiscal challenges and are cutting back where we can. We are committed to performing our work efficiently and effectively. Countries in Europe, Asia, and throughout the Western Hemisphere recognize that energy opportunity and are moving aggressively to lead. This is a race we can win, but we must act with fierce urgency.

So thank you. And I now welcome your questions.

[The statement follows:]

PREPARED STATEMENT OF STEVEN CHU

INTRODUCTION

Chairman Feinstein, Ranking Member Alexander, and members of the subcommittee, thank you for the opportunity to appear before you today to discuss the President's fiscal year 2013 budget request for the Department of Energy (DOE).

To promote economic growth and strengthen national security, President Obama has called for "an all-out, all-in, all-of-the-above strategy that develops every source of American energy—a strategy that is cleaner and cheaper and full of new jobs." The President wants to fuel our economy with domestic energy resources while increasing our ability to compete in the global clean-energy race.

Although the United States has reclaimed the title of world leader in clean-energy investments, we are at risk of falling behind again unless we make a sustained Federal commitment to supporting our domestic clean-energy economy. To compete globally, America has to do more than invent technologies, we also have to produce and sell them. Our country faces a stark choice:

—we can create jobs making and exporting the energy technologies of tomorrow; or

—we can cede leadership to other countries that are investing in these industries.

As President Obama reiterated in his State of the Union Address, passing a clean-energy standard is a vital step that the Congress can take to broaden our clean-energy market and promote U.S. leadership.

Making the most of America's energy resources is a pillar of the President's economic blueprint to build an economy that lasts. The Energy Department also supports other key elements of the President's agenda including leading in innovation, reducing our dependence on oil, cutting costs for families, businesses, and manufacturers through energy efficiency, and reducing nuclear dangers worldwide.

Guided by the President's vision, the Department's 2011 Strategic Plan and our inaugural Quadrennial Technology Review, our fiscal year 2013 budget request of $27.2 billion invests in the following priorities:

—Accelerating the transformation of America's energy system, and securing U.S. leadership in clean-energy technologies;

—Investing in science and innovation to promote our Nation's economic prosperity; and

—Keeping Americans safe by enhancing nuclear security through defense, nonproliferation, and environmental cleanup.

These priorities will be enabled through a continuing commitment to fiscal responsibility and management excellence.

LEADING IN THE ENERGY TECHNOLOGIES OF THE 21ST CENTURY

Last year, a record $260 billion was invested globally in clean energy, and trillions of dollars will be invested in the coming decades. To seize this market and job-creation opportunity, the President's budget request invests in programs that advance research, development, manufacturing, and deployment of the energy technologies of the future.

Decades ago, support from the Energy Department helped to develop the technologies that have allowed us to tap into America's abundant shale gas resources. Today, our investments can help us advance technologies that will unlock the promise of renewable energy and energy efficiency.

The budget request invests approximately $4 billion in our energy programs. It supports the Department's SunShot initiative to make solar energy cost-competitive with any other form of electrical energy, without subsidy, by the end of the decade. It advances technological progress in areas ranging from offshore wind to carbon capture, utilization, and storage to smart grid and energy storage. And it helps reduce our dependence on oil by developing the next generation of biofuels and accelerating research in advanced batteries and fuel-efficient vehicle technologies. Families, again, are feeling the pinch of high gas prices. As the President and I have said, there is no silver bullet to this challenge, but we can and must pursue a serious, long-term, "all-of-the-above" approach that diversifies our transportation sector, protects consumers from high gas prices, harnesses American resources, and creates jobs here at home. That's exactly what this budget does.

Leadership in nuclear energy technologies is also essential to our ability to compete globally. The budget request invests $770 million in the nuclear energy program to help develop the next-generation of nuclear power technologies, including small modular reactors. It also includes funding for continued research and development (R&D) on the storage, transportation and disposal of nuclear waste, which also

aligns with the recommendations of the Blue Ribbon Commission on America's Nuclear Future.

As we move to a sustainable energy future, America's fossil energy resources will continue to play an important role in our energy mix. President Obama is committed to developing our oil and gas resources in a safe and sustainable manner. Last year, our oil import dependence was at its lowest level in 16 years, oil production reached its highest level in 8 years and natural gas production set a new record. Building on this progress, the Energy Department's budget request includes $12 million as part of a $45 million priority research and development initiative by the DOE, the Department of the Interior, and the Environmental Protection Agency to understand and minimize the potential environmental, health, and safety impacts of natural gas development through hydraulic fracturing (fracking).

The budget request also promotes energy efficiency to create jobs and to help Americans save money by saving energy. It supports home weatherization and calls for passage of the HOME STAR program to provide incentives to homeowners to make energy-efficiency upgrades. It also invests in research and development to improve building efficiency and supports the President's "Better Buildings" initiative to catalyze private sector investment in commercial building efficiency. Finally, the budget request sponsors R&D on industrial materials and processes to help U.S. manufacturers cut costs and improve their global competitiveness.

To maximize our energy technology efforts, the Department is breaking down silos and coordinating R&D across our program offices. Modeled after our SunShot initiative, we're bringing together our basic and applied research programs and Advanced Research Projects Agency-Energy (ARPA–E) to harmonize their work in areas including batteries, biofuels, and electric grid technologies.

And to encourage manufacturing and deployment of clean-energy technologies, the President has called for renewing and extending proven tax incentives including the Production Tax Credit, the 1603 cash payment in lieu of tax credit program, and the Advanced Energy Manufacturing Tax Credit (48C).

As industry, the Congress and the American people make critical energy decisions and require greater understanding of domestic and international energy markets, it's important that we adequately fund the Energy Information Administration (EIA), the Nation's premier source of independent statistical information about energy production and use. That is why the budget request includes $116 million for EIA.

UNLEASHING U.S. INNOVATION TO CREATE JOBS AND LEAD IN THE GLOBAL ECONOMY

Competing in the new energy economy will require our country to harness all of our resources, including as the President said, the "one critical, renewable resource that the rest of the world can't match: American ingenuity." A key part of our country's success has been our leadership in science and technology, but we can't take that leadership for granted. According to the National Science Foundation's "2010 Science and Engineering Indicators" report, from 1996 to 2007, the average annual growth of R&D expenditures in the United States was about 5 to 6 percent compared to more than 20 percent in China.

To help keep the United States at the forefront of science and technology, the budget request invests in cutting-edge research that could spur new jobs and industries. This includes $5 billion for the Office of Science to support basic research that could lead to new discoveries and help solve our energy challenges. These funds support progress in materials science, basic energy science, advanced computing, and more. They also provide America's researchers and industries with state-of-the-art tools to help take their work to the next level.

The budget request continues to support Energy Frontier Research Centers (EFRCs). The EFRCs are working to solve specific scientific problems to unlock new clean-energy development. So far, the EFRCs have published more than 1,000 peer-reviewed papers and filed more than 90 patent applications or patent/invention disclosures. Researchers are reporting multiple breakthroughs in areas ranging from advanced battery technology and solar energy to solid-state lighting and nuclear power.

The budget request also supports the five existing Energy Innovation Hubs and proposes a new Hub in electricity systems. Through the Hubs, we are bringing together our Nation's top scientists and engineers to achieve game-changing energy goals. The Hubs continue to make progress. For example, the Modeling and Simulation for Nuclear Reactors Hub has released the first versions of its software that, upon completion, will simulate a virtual model of an operating physical reactor. The Fuels from Sunlight Hub has filed multiple invention disclosures and published scientific papers. And the Energy Efficient Building Systems Hub is developing ad-

vanced building modeling tools and has built one of the country's first 3–D building design labs.

Additionally, the budget request includes $350 million for the ARPA–E to support research projects that could fundamentally transform the ways we use and produce energy. ARPA–E has invested in roughly 180 high-risk, high-reward research projects that, if successful, could create the foundation for entirely new industries. These companies and research teams are working toward a prototype of a battery that has double the energy density and one-third the cost of batteries in 2010, bacteria that use carbon dioxide and electricity to make fuel for cars, grid-scale electricity storage, and other potentially game-changing breakthroughs. Eleven projects that received $40 million from ARPA–E over the last 2 years have done such promising work that they have now received more than $200 million in combined private sector funding.

Taken together, our research initiatives will help rev up America's great innovation machine to accelerate energy breakthroughs.

NUCLEAR SAFETY AND SECURITY

In addition to strengthening our economy, the budget request also strengthens our security by providing $11.5 billion for the Department's National Nuclear Security Administration (NNSA). NNSA plays a key role in achieving President Obama's nuclear security objectives.

As the United States begins the nuclear arms reduction required by the New Strategic Arms Reduction Treaty (New START), the science, technology, and engineering capabilities within the nuclear security enterprise will become even more important to sustaining the U.S. nuclear deterrent. The budget request includes $7.6 billion for weapons activities, a 5-percent increase more than the fiscal year 2012 enacted levels. This increase provides a strong basis for transitioning to a smaller yet still safe, secure, and effective nuclear stockpile. It also strengthens the science, technology, and engineering base of our enterprise.

The budget request also includes $1.1 billion for the naval reactors program to ensure the safe and reliable operation of reactors in nuclear-powered submarines and aircraft carriers and to fulfill the Navy's requirements for new nuclear propulsion plants that meet current and future national defense requirements.

Additionally, the budget request supports NNSA's critical work to prevent nuclear terrorism—one of the most immediate and extreme threats to global security and of one President Obama's top priorities. It includes $2.5 billion to implement key nuclear security, nonproliferation, and arms-control activities. It supports efforts to detect, secure, and dispose of dangerous nuclear and radiological material around the world. And it will help the Department to fulfill its role in accomplishing the President's goal of securing all vulnerable nuclear materials worldwide in 4 years.

Finally, the budget request includes $5.7 billion for the Office of Environmental Management to protect public health and the environment by cleaning up hazardous, radioactive legacy waste from the Manhattan Project and the cold war. This funding allows the program to continue to clean up and close sites and positions it to meet its fiscal year 2013 enforceable agreement milestones. This budget request builds on the significant progress that has been made by the program. By the end of 2011, the program had reduced its geographic footprint by 66 percent—far exceeding its goal of 40 percent.

FISCAL RESPONSIBILITY AND MANAGEMENT EXCELLENCE

DOE's fiscal year 2013 budget request makes strategic investments to promote our country's future prosperity and security. At the same time, we recognize the country's fiscal challenges and our responsibility to invest in much-needed programs while cutting back where we can. That is why the President's budget request eliminates $4 billion in inefficient and unnecessary fossil fuel subsidies.

Given the urgency of the challenges we face, the Department is committed to performing our work efficiently and effectively. We are streamlining our organization to improve performance and save taxpayer money. For example, the Department achieved approximately $330 million in strategic procurement savings in fiscal year 2011. We are taking several other steps such as reducing the size of our vehicle fleet, cutting back travel costs, and consolidating Web sites.

We are also breaking down barriers to make it easier for businesses to move technologies from our national labs to the marketplace, which can help the United States seize technological leadership and create jobs. For example, we've started a program which makes it easier, quicker, and less costly for start-up companies to sign option agreements to license national lab technologies. And to make it easier to work with the labs, we've reduced the advanced payment requirement and

streamlined the Cooperative Research and Development Agreement contract and approval process.

Throughout American history, the Federal Government has played a critical role in supporting industries that are important to our prosperity and security, from aviation and agriculture to biotechnologies and computer technologies. We should continue to do so today to lead in the new clean-energy economy. Countries in Europe, Asia, and throughout the Western Hemisphere recognize the energy opportunity and are moving aggressively to lead. This is a race we can win, but we must act with fierce urgency.

Thank you, and now I am pleased to answer your questions.

MESOSCALE

Senator FEINSTEIN. Thank you very much, Mr. Secretary.

I will begin with, hopefully, three rather short questions.

The largest increase in the Office of Science is for a program called mesoscale science. It is not defined. I do not know what it is. I do not know why it is a priority, and I do not know why we need to start a new $42 million program called mesoscale science. Can you explain that?

Secretary CHU. Sure. First, some definitions.

You understand what is the atomic, molecular, and so-called nanoscience. This is of the scale of maybe a few hundred nanometers and below. It is largely at a molecular scale.

Then you have another branch, the macroscopic size. If you think of a hunk of silicon that has certain electronic properties and things of that nature, you go smaller and smaller and smaller. There is this intermediate scale, not quite nano scale, but bigger than that at the thousand nanometer to sub-millimeter scale, microns scale, which we see popping up in very many things, from the properties of semiconductors to the new advanced materials, for example, high-strength steel. To understand this whole gradation of sizes is very important.

So I would not say it is a new area so much as a recognition that while we have made great progress in the nano scale and we know what bulk materials are, there is this middle gap where many of the properties of materials seem to lie.

Senator FEINSTEIN. Why is it necessary now?

Secretary CHU. We always knew that there are these size scales and that different things affect these different size scales. As we understand more about advanced materials and as we develop these diagnostics and see what are the material properties and what is the size scale that they are due to, we are finding out that the mesoscale is an important part of that.

Senator FEINSTEIN. We are going to have to talk more about it later.

Secretary CHU. I would love to brief you.

FUSION—INTERNATIONAL THERMONUCLEAR EXPERIMENTAL REACTOR

Senator FEINSTEIN. Let us go to fusion and ITER and the $150 million this year with the United States contribution to ITER subject to grow to $300 million. Now, this is going to take money away from domestic fusion programs—they are already concerned about it at National Ignition Facility (NIF)—and also other scientific priorities such as materials and biology research.

Here is the question: Should the United States consider withdrawing from ITER or at least reducing the United States' con-

tribution? If we do continue to fund it, where will the $300 million come from?

Secretary CHU. Well, Senator, you are asking a very important question that we have asked ourselves. But first, let me assure you that the program at NIF is not actually competing with ITER. NIF is supported by the NNSA budget, and we want to make sure that that NIF program goes forward.

Now, ITER is an international science collaboration. In the view of the fusion community, it represents the most advanced, best chance we have of trying to control plasmas in a way that can potentially bring about controlled fusion for power generation. And it is an international cooperation. We want this to go forward. We want to be seen as reliable international partners, but we are also very cognizant of the spending profiles and we are working with the fusion community in the United States, as well as internationally, to see if we can satisfy both the needs of the fusion community in the U.S. and this ITER commitment. In these tight budget times, it is tough.

Senator FEINSTEIN. Yes. At a later time, I want to know where the $300 million is going to come from. If we keep continuing and do not know where we are going to get the money next year, that is a serious concern.

WASTE ISOLATION PILOT PLANT

The last question: Waste Isolation Pilot Plant (WIPP), New Mexico, currently operates to dispose of transuranic waste from DOE cleanup sites. We provided $215 million for WIPP operations. With this total amount of funding, the Department decided to put $37 million of it toward characterization activities. The fiscal year 2013 request for WIPP is $198 million, with $23 million allocated for characterization.

I have met with members of the Carlsbad community and force who are concerned that this total level of funding is not adequate. Can you speak to that? Is it in fact adequate?

Secretary CHU. Well, again, it is a very tight budget situation, but we believe it is. We enjoy the support of the Carlsbad community, and a lot of what we are doing there is very important not only for the disposal of the transuranic waste, the low-level waste, but potentially that type of geological strata could be useful.

Senator FEINSTEIN. Yes. I think Senator Murkowski has been working on this, as have Senator Alexander and myself. I think we would agree with that, and WIPP is really the only thing that we have at this time, it seems to me. So what I want to be sure of is that it is adequately funded. Can you say categorically that it is?

Secretary CHU. Well, we believe it is, but we understand your concerns with that. Again, it is one of several types of geological sites that we would be very interested in exploring vis-á-vis the BRC report.

But again, I am going to make it very clear. We have not even set up a process for actually doing sites, but just the research of salt and the research in the ability of salt to contain high-level waste is something we are looking at very seriously and following the recommendation of the BRC.

Senator FEINSTEIN. Senator Alexander.

Senator ALEXANDER. Thanks, Madam Chairman.

Two nuclear questions, Mr. Secretary, quickly if I may.

You have a decrease of 12 percent for nuclear energy, and most of it comes from reactor concepts which focuses on advanced reactors like fast reactors. Are those not essential if we are going to deal with the question of nuclear waste?

Secretary CHU. Well, we are going to have to deal with the question of nuclear waste. Period.

Senator ALEXANDER. But in the end, we will have to have a fast reactor. Will we not?

Secretary CHU. We may and may not. The verdict is not in. We do want to look at research, the idea that the fast reactors use high-energy neutrons that help burn down transuranic waste and greatly reduce the amount of eventual waste as compared to the electricity generated.

Senator ALEXANDER. Yes. And my second is you have $65 million for the small modular reactor, and I appreciate the chairman's willingness to support this while we take seriously the waste problem at the same time. But this is $30 million short of what we described last year. How does that meet the needs of the 5-year $452 million program that you outlined last year?

Secretary CHU. Well, again within our budgets, we are trying to move forward on this. We believe the money we asked for in fiscal year 2013 will help with the engineering design of two of these reactors. There are a number of companies that are gearing up. They see this as an opportunity for them, and so we are going to have to make some tough decisions.

If I may, I just want to go briefly back to the advanced reactor concepts.

Senator ALEXANDER. I have two or three more questions I want to ask you. So if I may, I just want to highlight these areas during the time allotted to me.

I mentioned in my opening remarks you have made good progress on cleaning up the radiological waste in Oak Ridge, but to date there are more than 2 million pounds of mercury unaccounted for and the continued releases of mercury in Poplar Creek run through the town. Do you have a plan for addressing mercury and its cleanup in Oak Ridge? And what steps should we begin to take to keep it from getting into the water?

Secretary CHU. First, you are quite right to be concerned about this. We have already taken some steps in the sense that when there are rains, we have a holding pond for the storm water so that the solids get deposited before it is returned to the river, and we know that this is mitigating this problem. But we eventually have to address this problem. It is a very important problem, and it is very much on our radar screen.

Senator ALEXANDER. Well, I appreciate your making it a priority. And Governor Haslam of our State and I and you—we have met on this, talked about it.

As we finish the cleanup job on radiological waste in Oak Ridge, I want to make it an increasing priority to develop a plan to clean up the mercury. And I look forward to working with you on that.

Because you visited there, you know this very well. This is not a remote site way out in the desert somewhere. This is a very highly metropolitan area which makes mercury in the water even more of an issue.

ENERGY EFFICIENCY AND RENEWABLE ENERGY INCREASE—WIND TECHNOLOGY

One other question: This is a time for priority setting. A 29-percent increase in energy efficiency seems to me to be not something we are likely be able to do this year, especially given the other important priorities in your budget.

But I want to ask you one other question. You said that you recommend extending the production tax credit and the 1603 cash grants which go primarily to wind developers who do not want to take the production tax credit. The Treasury Department says that over the 5 years between 2009 and 2013, that that cost taxpayers—those two things together cost $14 billion. The Joint Tax Committee says the production tax credit is $6 billion and the cash grants are $8 billion. Now, that is about $3 billion a year and we only spend a little more than $5 billion a year on energy research in our Government. I would like to get that energy research number up to $10 billion.

You have testified that wind is a mature technology. If it is and if we are in a time of priorities and if we need to double our funding for energy research, why would it not be a good idea to phase out these long-term subsidies. The production tax credit started as a temporary tax credit in 1992. Why would we not phase those out and use it for research, for your hubs, for solar, for carbon recapture, for offshore wind, but not to subsidize a mature technology?

Secretary CHU. I think there is not that much disagreement between you and the wind industry in the sense of allowing a phase-out period. But the wind industry has made great progress. It is becoming a mature technology, as they note. The good news is that their costs are becoming comparable to any new form of energy. They are still more expensive than new natural gas, but they are within striking distance. To actually begin to think of a way to phase this out is something that even the representatives of the wind industry acknowledge should happen.

Senator ALEXANDER. Well, that is an encouraging comment. My reading of history suggests that long-term subsidies—and 20 years is long-term—tend to cause costs to stay high instead of introduce the competition that cause costs to go lower.

But I have used all my time, Madam Chairman. Thank you.

Senator FEINSTEIN. Well, thank you very much, Senator Alexander.

Senator Johnson and then Senator Murray, Cochran, Murkowski, and Collins.

Senator JOHNSON. Secretary Chu, welcome and thank you for being here today.

As you know, over the past year, operations of South Dakota's Homestake mine have been moving forward and tremendous progress has been made on the development of the Sanford underground research facility. Given major scientific discoveries recently announced in the field of high-energy physics, it is more important

than ever that the U.S. invest in a domestic underground research facility in which we can provide global leadership in science and technology.

Unfortunately, it is my understanding that the Department's request would reduce funds for sustaining operations by about one-third below the fiscal year 2012 level. This reduction would likely result in layoffs at the lab and undermine confidence of our long-standing State, international, and private partners that have dedicated significant funding to this project.

How does the Department plan to sustain this critical U.S. underground research facility to continue to attract international interest and keep dedicated private and State partners together given the current budget request?

Secretary CHU. Well, Senator, we want very much to have this underground laboratory continue. We recognize the leadership of your State, actually of Mr. Sanford as well. We are completing plans for exactly what type of detector we are going to be putting in there for this long baseline experiment. There has been a shift. There have been new technology developments, and the Office of Science tells me that they think that a liquid argon detector might be the best detector. So what we have done is we have said, "All right, let us continue studying this liquid argon detector."

We do want to move forward on this type of work and this experiment. Despite all of the strains in our budget, we do believe that you cannot really tell where basic research will give us new insights and new opportunities. And high-energy physics, nuclear physics, cosmology, these are areas that are essentially flat, but we still treasure them and want to continue them.

Senator JOHNSON. The administration has been focusing on a broad energy policy to address high-energy costs which includes expanded domestic oil and gas production, alternative fuels, and energy efficiency. I do agree that oil and gas production can and should be increased in a safe and responsible way where we can.

But as you know, the United States has about 2 percent of the world's oil reserves and we account for about 21 percent of the world's petroleum consumption. Our current level of dependence on oil, no matter where it is from, subjects us to the price volatility of world oil markets and the shocks that come from both real and threatened supply disruptions. Accordingly, I would like to focus on the importance of diversity on our energy mix and specifically advances in biofuels that can be developed in rural America.

BIOFUELS

Could you elaborate on efforts in the budget both within DOE and across agencies, for example, with the Department of Defense (DOD) and United States Department of Agriculture (USDA), to drive development and commercialization of advanced biofuels?

Secretary CHU. Well, Senator, we share your enthusiasm for advanced biofuels. We think that research, development, and demonstration of those advanced biofuels is something very much in the interest of the United States so that we can diversify our supply of transportation energy. Liquid transportation energy will be with us in this century, and there is a great deal of pain that our citizens businesses feel if oil is the only source.

Now, the good news is that there has been remarkable research in transforming, biowaste feedstocks, feedstocks that do not necessarily compete with prime agricultural land for food. We are very bullish on this because this is one of the most rapidly advancing areas in science and technology.

We have these bio-energy centers that were started in the previous administration under Sam Bachman's leadership that are going great. As a measure of how well they are going, just this last year agreements with about 23 companies to share technology, now totaling about 50. In this ramp-up period over 3½ years, you just see it ramping up, but lots of people in the private sector have gotten very interested and are taking this technology. So that is a very good sign. That is a measure of success.

But we want to actually diversify not only for the biofuels but also so that electrification can take some of the load. Natural gas can take some of the load, that will also bring relief to Americans.

Senator JOHNSON. Thank you, Dr. Chu.

Senator FEINSTEIN. And thank you very much, Senator Johnson.

Senator Murray.

Senator MURRAY. Thank you very much, Madam Chairman.

And, Secretary Chu, welcome. Thank you.

You probably think all I care about is Hanford and the Waste Treatment Plant (WTP) because every time you are in front of us and we talk, I bring that up. And there is actually a real reason for that. It is one of the most difficult projects that DOE has ever undertaken, and the Federal Government, as you well know, signed a consent decree legally obligating itself to complete the cleanup of the Hanford site with very specific milestones.

It has been very frustrating over the past couple years. The funding needs that were identified by DOE have changed, and those milestones have not changed. And you can expect that the Congress does not like to be surprised. So it has been challenging. And over time, it has become even more difficult to understand how much annual funding you believed we were actually going to receive as you wrote that agreement, but it is pretty clear now that the Congress does not have ever-increasing funding to apply to one project.

WASTE TREATMENT PLANT

So as you draft a responsible spending profile as you again re-baseline the WTPs, I really caution you to be mindful of that and to work with all of us and consult with the Hill as you work on that.

But I did want to ask you, as you do work to re-baseline this funding profile, how will you make sure that your agency meets its obligations that were set forth in that consent decree and under the Tri-Party Agreement? And actually, what will happen if DOE fails to meet those?

Secretary CHU. Well, Senator, as you know, this has taken a lot of my personal attention, the attention of the Deputy Secretary, and the attention of the Under Secretary. We have made some changes in the program. I think we have brought in some very good people, and we are balancing the tank farm and the WTP project as much as we can. We are certainly working very hard and recog-

nize our obligations. We feel in fiscal year 2013 our obligations are going to be met. But you are quite right to be concerned, and we will work with you going forward.

Senator MURRAY. Well, what happens if the DOE does not meet the consent decree requirements?

Secretary CHU. First, we do not know for sure, but it really depends a lot on the budgets we do get from the Congress and what we can do with those——

Senator MURRAY. And what budgets the administration sends to us, I would add.

Secretary CHU. Right. Yes, it is a combination of both of those.

Senator MURRAY. Well, we need to be consulted as that moves forward. It is extremely important.

But, you know, the WTP has been under construction now for over a decade and has progressed to nearly complete design and more than 60 percent of the construction work is finished. Yet, here we are, well into this project, and there have been several significant technical issues raised about the WTP. These issues have been raised by people working on the site, by outside interests, and even the Department itself. Now, we all know the WTP is a one-of-a-kind construction project and some twists in the road are expected, but it is time to move here and inside those black cells, there is no room for error. And I wanted to ask you how confident you are that you have identified all of the major technical issues and that those can be resolved.

Secretary CHU. Well, the technical issues that have added to the budget demands are issues that were known several years ago, I think even known before I became Secretary. We are trying to resolve those issues with the Defense Board, with our people. We agree with you that once that goes hot, you want to make sure it is going to work. So that is why we, for the sake of prudence, agreed that we should do additional testing, for example, with the pulse jet mixers so that we have some confidence that there would be no unforeseen event that could occur that would mean we would have to go in once it is hot. There are several other issues, and we worked through those issues.

Senator MURRAY. What is your level of confidence?

Secretary CHU. I think with the pulse jet mixing, there are many ways of doing it. So we can buy additional insurance. It has to do with the solid waste and the suspension of the solid waste in the tank farms, and there are different ways of doing that. We could essentially pre-filter so that not all the solid waste goes in. So there are things like that just to give us added confidence.

In the meantime, we have a very rigorous way of testing whether it is going to work or not. So it is a program that we are going to be doing. Until we actually go through and then do the testing, I cannot really say.

FEDERAL ENERGY REGULATORY COMMISSION—BONNEVILLE POWER ADMINISTRATION

Senator MURRAY. Okay. Well, my time is almost out, and I did want to mention that you know that the Northwest is really struggling last spring with too much hydro and wind generation. And Federal Energy Regulatory Commission's (FERC) December ruling

caused more uncertainty. I am concerned about suggestions that FERC-mandated regulations are the best way to resolve renewable integration issues, and I expect to be consulted if at any point you or your staff are considering any policies that would increase FERC jurisdiction in the Northwest, directly impact our Northwest ratepayers, or affect our Bonneville Power Administration (BPA) rates. So I just wanted to make sure you knew that.

Secretary CHU. Absolutely. We will consult with you.

Senator MURRAY. Thank you very much.

Thank you, Madam Chairman.

Senator FEINSTEIN. Thank you very much, Senator Murray.

Senator Cochran.

Senator COCHRAN. Madam Chairman, we appreciate the Secretary's presence before our subcommittee today and thank you for your cooperation with us since your confirmation as Secretary of the Department of Energy.

I do not know of any hotter seat in the country right now than yours, looking at the gasoline prices at the pumps up and down the roads and streets and trying to imagine the challenges being faced by people who depend upon using their vehicles in business or for whatever purpose they have to use that vehicle. They have no other options. No mass transit in some cities and towns. People have to rely on that as their primary source of mobility. And once you start thinking about the consequences of ever-increasing costs of energy, including gasoline, in the operation of vehicles, we are going to be in really serious trouble. A lot of people individually are suffering terribly right now, losses of income and downturns in economic activities. Some businesses are becoming obsolete because they cannot function as they used to on gasoline that was more reasonably priced.

OIL PRICES

What is your outlook right now? What should we be doing as the Congress and you as the Secretary of Energy to turn this thing around?

Secretary CHU. Well, Senator, first I feel the pain of the American public, the personal stresses, as you very clearly described. There are many situations where you are in a certain situation. You have no other choice and you have to pay for that increasing gasoline bill. As the President has made it very clear, we are looking at every tool we have in order to try to bring down those prices.

In the tools that I have personally, we are all looking at, short- and mid-term, but they are rather limited. We are going to look at all those tools, but in the longer term the first thing is to help U.S. auto manufacturers build more efficient cars so that people can have those vehicles and have their mobility but not have to spend as much at the gasoline station.

We are very much trying to offload some of the things where we can offload. Natural gas—liquid natural gas vehicles for long-haul trucks already makes good commercial sense. So we at the Department of Energy (DOE) are encouraging this. Private enterprise is willing to fund a concern we know of, more than $300 million in liquefied natural gas stations because long-haul trucks that use diesel and go 100,000 miles consume 20 percent of our petroleum

energy for transportation in the U.S. So you can make a significant dent in that because of the fact that you do not need a service station at every corner. You need key service stations on interstates.

We are just announcing that we intend to—we are asking for comment right now, and we are going to put out a FAR on the street so that we can get compressed natural gas down in cost. The biggest cost is the storage tank in a delivery van vehicle or in a personal vehicle. So we are going to be looking at ways to reduce the cost of that storage tank, either better materials for the high-pressure tanks and research that allows us to use adsorbates in the tank so that you are going to have the same range with the same volume. If we can get that to occur, then we can offer to the public at large, not only the American public but the world a different kind of flex fuel. You can fill it up with natural gas or you can have gasoline or diesel. The same engine will burn both. So depending which cost of fuel is less, you have that opportunity.

We are doing anything we can do—we talked about biofuels. Batteries. Batteries are very expensive, but the research we have supported have done a great deal. Very recently one of our grantees has announced that they have just doubled the world record of energy storage in a lithium-ion battery where we think that the cost of manufacturing will be no greater. So we have just literally halved the cost of the battery. That company thinks they can halve it again. At that point, electric vehicles that have the same range as today's electric vehicles or plug-in hybrids become the low $20,000 range, and that would be fantastic because the costs of ownership would then be competitive and be even better than competitive with internal combustion engines.

So we are working very hard. We are very focused on this problem.

Senator COCHRAN. Well, I cannot think of another higher priority on our list of challenges that we face in the domestic economy than the cost of gasoline in operating vehicles, private family vehicles, those that are used in work and business. It is very disturbing, and I think we need to come together, the Congress and the executive branch, with a strategy that produces some results. You made an impressive list off the top of your head of things that are being done by the DOE, and I would just urge you to do more. Let us get on with it.

Senator FEINSTEIN. Thank you, Senator.

Secretary CHU. Can we just——

Senator FEINSTEIN. Go ahead.

Secretary CHU. We just had a quadrennial technology review, a very thoughtful report led by Steve Koonin, the Under Secretary of Energy. We made it quite clear in that report we have to reapportion the amount of money we are spending. We were spending far too little on transportation energy, and it was very clearly stated in that report that we have to refocus.

Senator COCHRAN. Thank you.

Senator FEINSTEIN. Thank you.

Senator Murkowski.

Senator MURKOWSKI. Thank you, Madam Chairman.

And following on the discussion here, I think we recognize that there is no one silver bullet. We recognize that there is a—it takes

a long time to translate what you have been talking about into a difference in the market, the price to the consumer. They say that recognizing that it takes decades for a tree to grow to maturity, the best time to plant a tree is now.

We have faced the argument for decades now that, well, if you bring on additional oil out of Alaska's North Slope, particularly Arctic National Wildlife Refuge (ANWR), it is going to take too long to impact the price of oil or the price at the pump. And again, I am just reminded that it does take a long time to make it happen. So we should have started decades ago. That is my little pitch.

HYDRAULIC FRACKING

I am now going to talk about hydraulic fracking, if I may. And this is in regards to a comment that came from one of the members of the advisory board, your advisory board, Mr. Secretary, that looked at hydraulic fracturing. And we had had a presentation before the Energy Committee by the board. I thought it was a very informative report, and I was pleased to learn of their outcomes.

But one of the members, Mr. Zorbach from Stanford, said—his words, "We think the mystery surrounding hydraulic fracturing has actually been exacerbated and people have been paranoid really for no reason."

There is a lot of discussion right now going on about hydraulic fracturing and for lots of good reasons. We are seeing an incredible boon across the country in the Marcellus and the Barnett, and it is all because of the technologies that are out there.

I came from a hearing this morning where we had the head of the Bureau of Land Management (BLM), Mr. Abbey, speaking to what United States Geological Survey (USGS) is doing with their hydraulic fracking study, the rule that they will be promulgating sometime in April I believe. EPA is also doing a study.

The question that I would have to you—I understand in your budget, you are asking for $17 million to again review the process. You have clearly spent money to do this review, and the board has considered that. So I guess the question is: Do we need to spend an additional $17 million within the DOE budget when we have got other agencies that are also looking at it when you have already done it, and at least when one of your members has said there's really no reason for this mystery and the paranoia. So are we overlapping here?

Secretary CHU. Well, I sincerely hope not. The whole intent of having several agencies, Interior, EPA, and DOE to work together is so we do not overlap.

Senator MURKOWSKI. Are you working together I guess is the question that I am asking.

Secretary CHU. We have begun this process.

But as far as DOE's role, we with USGS, within the Department of the Interior, are pretty knowledgeable about how fluids move around in rock. We have gotten a lot more knowledgeable about oil and gas since the events of two summers ago. And our focus is let us help industry develop; let me also say they are making great leaps and improvements in their technology. So to continue to help industry improve their best practices so we can develop this very important natural resource in an environmentally responsible way.

So we see ourselves as technologists that can help understand when you frack, exactly what is happening, help control so that you do not over-frack.

Senator MURKOWSKI. Let me ask then on that because the process has been around for decades. It has been around for about 40 years. So what are you looking at within DOE in terms of the technologies that you are finding is new or unusual or can be enhanced or what have you?

Secretary CHU. Let me give you a couple of examples. Seismic sensitivity has been increasing over the last decade. So you know exactly how much to frack, when to stop. We think we can help with using potentially different fluids if there is a source of carbon dioxide. Carbon dioxide as a fracking fluid might be a good substitute for water if there is a readily available source; there may be in many regions because carbon dioxide is produced with oil and natural gas, things of that nature.

I think actually that is well under hand because industry has taken a leadership there already. You need antimicrobials. Some of the older antimicrobials could have a worse environmental impact. So industry, again, has gone in the right direction.

The subcommittee you spoke about talked about helping assemble data so that the industry can use it and know because best practices improve year by year. Those are some of the things we are thinking of.

Senator MURKOWSKI. Well, it is something I think—it is important for those of us that are looking at this from different agencies to understand that there is a different perspective that is ongoing because otherwise there is a lot of studies out there on a technology that, again, has been around for a long period of time, and we want to make sure that you are talking from agency to agency to understand what the purpose and the goal of your reports are.

Senator FEINSTEIN. Thank you, Senator.

Senator Collins.

Senator COLLINS. Thank you, Madam Chairman.

Secretary Chu, welcome to the subcommittee.

As you might suspect, I do want to talk to you today about deep water offshore wind and the demonstration project. But I want to begin my questioning today talking to you about the weatherization assistance program.

WEATHERIZATION PROGRAMS

There are four factors that make weatherization programs particularly important for the State of Maine. First, we have the oldest housing stock in the Nation. Second, some 80 percent of our homes use home heating oil, and with the price of oil going sky high, that places a real burden. Third, we are a low-income State with a lot of elderly individuals. And fourth—and I know my colleague from Alaska also has been concerned about this—has been the harmful reduction in the Low-Income Heating Assistance Program (LIHEAP). So the weatherization effort becomes even more important.

What we have found in Maine is that if you weatherize one of these older homes, the homeowner can save approximately $500 annually in heating costs, and that is real money that we are talk-

ing about. I know the Department's estimate is heating bills could be reduced by about 32 percent. Thanks in part to a grant from DOE, there are three new weatherization training programs at our community colleges and a technology center. And that is important because we need to train people who know how to do the weatherization effectively.

My question to you is: How committed is the Department to ensuring an adequate level of funding for weatherization. It has sort of gone up and down over the years. There was a big increase in the American Recovery and Reinvestment Act (ARRA). Then in 2011, it was $171 million. It dropped substantially last year, and now you are requesting about $136 million, which is way better than last year's final number, which was cut by the House, but it is still substantially below the fiscal year 2011 number.

Secretary CHU. Well, Senator, this is a very important issue. In fact, not only in your State, but in the entire Northeast, there is a lot of homes on home heating oil. I see several thousands of dollars worth of heating bills when you are on home heating oil, which is very, very scary.

So what are we doing? Well, within our budgets, we are trying our best. But there is something else I think we can do within our limited budget, and that is to look at ways to stimulate investments. Many of these people do not have the cash on hand, and yet, if they could get moderate cost loans, their out-of-pocket expenses would be zero, but their monthly expenses in the savings from the heating bills could be less—those savings could be greater than the payment of the interest and the principal. So if done right, we believe that is possible.

So what would be the structures in order to do this? Some States already have them. The utility companies could be a supplier of the capital, as long as the utility companies are allowed to make a return on that investment to help their customers. Home heating oil is not actually attached to utility companies, but utility companies do have access to capital. There may be other businesses that have access to low-cost capital.

We are also looking at Maine. It is already a brisk business, and we are looking at how can we help in the wood chip/wood pellet because there, if done right, you are using your forests in a recycled way. So your net carbon is zero in terms of that. It is much less expensive right now than home heating oil. We are also doing research on taking biomatter in what is called a pyrolysis. It does not convert it into diesel or gasoline, but that is a technical issue that we have to stabilize that, but it could be a direct subsidy for home heating oil.

So, we are looking at it in a number of ways to bring relief to much of the Northeast. Even with this expansion of natural gas, we look very hard into is it possible to run natural gas lines. In many places we find it is not. They are either too remote, the ground is too rocky—there are many, many reasons why you cannot do that. So we are looking at all the ways to bring relief to Americans with respect to heating.

Going back to efficiency, it is really getting a financial mechanism in place where people who do not have the $5,000 or $10,000 can they get something where the repayment of that debt is less

than the savings that they make on a yearly basis. We all recognize that we will not have the ability to invest the way we did during the ARRA days. This is some of our thinking.

Senator COLLINS. Thank you. I will wait for the next round for the next question.

Senator FEINSTEIN. Thank you very much, Senator Collins.

Senator Tester.

Senator TESTER. Yes, thank you, Madam Chair.

Real quickly, Dr. Chu. You are a smart guy, a researcher. From what you know about fracking right now—because I get different input from different folks, I do not know if either one of them knows exactly what they are talking about. But from what you know about fracking right now, is it having negative impacts on our water?

Secretary CHU. Well, I would say from what I know about fracking, you can develop it in an environmentally responsible way.

Senator TESTER. Is it being done that way now?

Secretary CHU. Well, I cannot guarantee that everyone who is fracking is doing it that way, but certainly what appears to be is that a lion's share of the people are doing it responsibly.

TECH TRANSFER

Senator TESTER. I am interested in developing and expanding tech transfer from research agencies throughout Government to the private sector. I think it is important. In recent years, DOE has done a great job, probably the best of any agency. In 2009, your agency had 15 times the number of active licenses as the Defense Department.

With those successes that you have had in tech transfer, have you been able to recommend to other agencies a way to implement—to repeat your success as far as tech transfer goes in other agencies?

Secretary CHU. We are always talking to other agencies, as we are also trying to improve the way we transfer technology even within the DOE. Thank you for that praise, but we can actually do better ourselves and are very focused on that because, as I think Senator Alexander said, our research universities and our national labs are an incredible asset.

Senator TESTER. And I appreciate that. I think you do a good job. I think you probably just admitted you can even do a better job. I would just encourage you to share any sort of information that you have to other agencies so that they can do as good a job as you.

FUEL CELLS

In the 2012 State of the Union Address, President Obama exhorted the Congress to not let other countries win a race to the future, saying that he would not cede the wind, solar, or battery industry to China or Germany because we refused to make the same commitment here. Given that Germany, Japan, and South Korea's commitments, among other countries, to fuel cell electric vehicles and hydrogen infrastructure, are we ceding to other countries?

Secretary CHU. Well, this goes, I think, back to the statement of Senator Alexander again. There was a question about our FE budget and our solid state fuel cells. We still want to continue the sup-

port of fuel cells for transportation. We think solid state fuel cells are in a stronger position. Industry is investing pretty heavily in it—United Technologies Corporation (UTC), Rolls, others. And so again, with a tough decision, we think solid state fuel cells are actually getting to the point where they, especially for backup power and a substitute for emergency diesel, look increasingly promising. So we do not want to cede fuel cells.

I would also say that through DOE investments, there has been remarkable progress in fuel cells themselves in reducing the costs and increasing the longevity. It is not completely there yet, but there has been remarkable progress there.

The bigger issues have to do with the storage of hydrogen, something that we still want to work on because it is compressed hydrogen. We now have an additional incentive, as I said before, about the adsorbate natural gas storage. So we see those as real opportunities.

Senator TESTER. So you are still moving forward on your commitment to fuel-cell technology.

Secretary CHU. Yes. But the solid state ones are in a better technological place, a more mature place.

Senator TESTER. Have you had the opportunity to meet with industry to ask them whether the policies that you have are adequate to keep the industry here?

Secretary CHU. Several times. They are very concerned, and they have convinced me that we want to keep this program going.

BONNEVILLE POWER ADMINISTRATION—PUMPED STORAGE HYDRO

Senator TESTER. Real quickly because I am about out of time. I want to talk about pumped storage hydro, and I will not go through all this. But 2 weeks ago, you testified in front of the Senate Energy and Natural Resources Committee that you are pushing BPA to do more pumped storage hydro. I am sure you know the background on this. Does this mean that you will reconsider the project awaiting investment which will push aside last year's by BPA in Montana?

Secretary CHU. Well, that is trickier. You are absolutely right. I am pushing BPA to begin. They have within their series of dam within their jurisdiction, they can pump from one dam to another. And the first pass, they have looked at it, and they said there were other ways of solving this problem. But they are looking at pumped hydro. It does get trickier once you are pumping from someplace in Montana. Legally they are permitted to do it. That is my understanding, but I have to get back to you on that.

We are also very much committed to very inexpensive forms of utility-scale storage at the cost of compressed air or pumped hydro, but anywhere in the world is something that would be very important for the development of our grid system.

Senator TESTER. Thank you, Madam Chair.

Thank you, Dr. Chu.

Senator FEINSTEIN. Thank you, Senator Tester.

Senator Graham, welcome.

Senator GRAHAM. Thank you, Madam Chairman.

Are you having fun, Secretary Chu?

Secretary CHU. Oh, sometimes and sometimes not. Sometimes they are more fun than others. Thank you for asking.

Senator GRAHAM. Thanks for being willing to serve. I know it is tough at times.

YUCCA MOUNTAIN

I want to talk to you about a couple things very quickly. Yucca Mountain. Do you envision President Obama being able to certify that Yucca Mountain will be the central repository for spent fuel?

Secretary CHU. Do I envision that? Well, I think——

Senator GRAHAM. Probably not?

Secretary CHU. Probably not.

Senator GRAHAM. Okay. Well, that is an honest answer, and I agree with you. I disagree with his conclusion, but I think that is probably where he will be.

So I have legislation. There are $35 billion sitting in a trust fund that is being collected from ratepayers all over the country to deal with the spent fuel issue, and we got a big hole in the ground and nobody is going to use it at least for spent fuel. So I have got legislation that says that 75 percent of the $35 billion will be rebated back to the consumer through the utilities so people can get a reduction in their power bill for the money they have already paid, and the other 25 percent will be used to upgrade on-site storage facilities in a manner to make sure they are safe. If we do not have a central repository, we are going to have to use existing facilities at least for a while.

Does that make sense to you?

Secretary CHU. Well, Senator, I am going to side with the BRC on this one. I think that we have a spent fuel problem, and the BRC has recommended, we are collecting a lot of money directly from the people who generate that power. We would like that money to go directly to this issue so that we actually begin to solve this.

Senator GRAHAM. How much did Yucca Mountain cost thus far? How much have we spent on Yucca Mountain?

Secretary CHU. Certainly billions, but I do not know exactly. We can get the number back, but I think you have it.

Senator GRAHAM. Well, I do and I will not share it with you. I will tell you later. It is not $35 billion. I guess my point is that I do not see any system costing $35 billion. So we would like to work with you to get some of this money out of the trust fund back to the ratepayers and in all seriousness improve on-site storage because there is not going to be anything new in the next 5–10 years.

Senator FEINSTEIN. Oh. We will talk.

Senator GRAHAM. Okay. She is going to fix it.

Assuming that Senator Feinstein does not fix it in the next 5 years, I think we need to improve on-site storage. So I would like to talk with you about how to do that with existing funds.

NUCLEAR REACTOR LOANS

The loan guarantee program. I am very impressed with the administration's embracing the nuclear power. Quite frankly, I think you have been very pro nuclear as Secretary of Energy. Do you still support the loan guarantee program for nuclear power reactors?

Secretary CHU. I do.

Senator GRAHAM. And the couple that are being built now in South Carolina and Georgia—you would urge the country to stay behind that program, building these two reactors?

Secretary CHU. Yes. I think it is important, with the good Senator from California here as well, I think it is important that we have a diversity of energy sources. I think the power countries themselves do not want to be——

Senator GRAHAM. I do not want to speak for her, but I think her concern is what do you do with the spent fuel because if you build more reactors, you got more spent fuel. So if we can solve that problem, we kind of help her.

So I appreciate you supporting the loan guarantee program. I think as a temporary program, if we can get a handful of these things up and built, the private sector will have more confidence in building reactors.

So the other issue is the Savannah River site has—you have got $15 billion underfunded pension plans. We are going to transition in January 2013 to a new healthcare retiree benefit plan, and we are working with your office about how to do that gradually and fair to people on fixed incomes. So I am going to personally visit with you on this to make sure that we can transition to a new healthcare benefit without putting people who have won the cold war in unnecessary jeopardy.

Secretary CHU. I would be glad to.

Senator GRAHAM. Will you please tell the people at the Savannah River site we are talking?

Secretary CHU. Yes.

Senator GRAHAM. Okay, good because I hope they believe me, but we are. We are really working hard on that.

OIL/GAS

Now, let us talk quickly about gas. You are for small modular reactor research? That could be the future?

Secretary CHU. I think it is going to be a very important part of our energy option.

Senator GRAHAM. Okay. I could not agree with you more.

Now, how many barrels of oil do we use a day in America?

Secretary CHU. Barrels of oil we use a day. I have to work backwards. We are producing about——

Senator GRAHAM. What if I said 20 million?

Secretary CHU. That is about right.

Senator GRAHAM. So how many do we produce here at home?

Secretary CHU. Petroleum liquids generalized.

Senator GRAHAM. Oil.

Secretary CHU. Oil includes petroleum liquids as long as it goes into a refinery. About 12, almost 11.5 million barrels if you include just the petroleum liquids.

Senator GRAHAM. I was told 7 million.

Secretary CHU. That is why I was so careful.

Senator GRAHAM. Well, the bottom line is I know what Senator Murkowski said was true about planting a tree, but I am of the opinion if we announced tomorrow that we would embrace responsible extraction in ANWR, reopen the eastern Gulf in a robust way,

and signed the Keystone Pipeline agreement with Canada and made it a reality, that the market would respond positively to that because that would create 3 million barrels of domestically produced oil or bought from Canada, one of our best friends. Do you think those three announcements would have a positive effect on oil prices in our efforts to be energy dependent?

Secretary CHU. As we announce more tracts of offshore oil and Federal lands open for exploration and bids, that directly does not seem to have as big an effect as one might think.

Senator GRAHAM. I do not want to take time away from Senator Reed. He has waited patiently.

I just cannot believe that it would be a positive. I do not think it would be a negative thing. I just cannot believe that you cannot say yes because clearly, if we opened up more domestic production and bought oil from Canada and created 3 billion barrels that we do not have today, people would see that as a positive sign. I just encourage you to look at those three things.

Thank you for your service.

Senator FEINSTEIN. Thank you very much, Senator.

Senator Reed.

Senator REED. Thank you, Madam Chairman.

Thank you, Mr. Secretary, for being here.

I want to associate myself with the comments that the Senator from Maine made about weatherization. I thought she was particularly eloquent and precise about the importance of the program. And I appreciate your response which is, you know, we are trying to compensate for the fact that we will not see this money go up again. We all understand, as Senator Collins pointed out, there was a big burst of funding under the Recovery Act. It took a while to get out.

WEATHERIZATION

But I think there is an important point to be made. The studies I have seen suggest that for every $1 we invest, we get $2.51 back in terms of demand reduction, in terms of avoided costs. We have also put, as you certified last December—we met the Recovery Act goal of 600,000 homes weatherized; 14,000 jobs were supported. Up our way, this is not just an issue of demand reduction and compensating for the LIHEAP. This is good work for people who are really out—you know, they are carpenters and they are tradesmen and women, et cetera.

So I appreciate your very thoughtful ways of trying to get around a lack of funding, but I think the point that I would make—and I hope you would agree—is that this is a program that can be justified based upon its cost benefits, its job creation, its demand reduction. And I do not think either she or I or Senator Murkowski—I will just speak for myself—are going to just simply sit back and say, well, that is not worth pursuing. I think we have got to pursue this weatherization more aggressively. And so your comments.

Secretary CHU. As we rebuild the infrastructure, weatherization, and energy efficiency in buildings I see as something we could be doing for the next 30, 40, 50 years creating jobs at home and helping American families and businesses save money. It is one of the big opportunities we have to grow our economy, to grow our jobs,

to help us save money. That money goes directly back into the economy. So it is a very big deal, and we will be looking at spending a lot of time on programs such as the Better Buildings program, programs that we can actually get off the ground because it can be leveraged. I see a leverage of 100 to 1, a much bigger leverage, and I see the opportunity for decades of growth.

Senator REED. Well, I do too, and I think that is why we—I will speak again for myself—we are going to push very hard to get more resources for weatherization.

The other irony is it took such a long time to get these programs up and running. If we let them atrophy, which this budget will, we will be right back where we started from in 2009 which is the States were not prepared to spend the money. We did not have the certified weatherization people. Now we are ready to move. I mean, you demonstrated that when you concluded we finally met the Recovery Act goal and we have supported those jobs.

So I think we are just going to ask you, in your internal counsels, be aggressive about not just alternatives to weatherization but weatherization.

RESEARCH AND DEVELOPMENT EFFORTS

Let me ask you another question, Mr. Secretary, just as a general comparison. I cannot think of anyone more superbly qualified to lead our research efforts when it comes to R&D in sophisticated energy technologies. How is your budget and how are we doing relative to other countries? And is that a source of concern to you or confidence?

Secretary CHU. No. It is a concern to me. If I look at other countries and how they are borrowing from our playbook—we have a long history of funding our research and development through our national labs, through our universities, and even in some companies. They see this as a great way to speed up their development, their competitiveness.

If I look at, for example, a random country, China—not quite random—the Chinese Academy of Sciences have been increasing their efforts, it is not an honorific society there. It is a funding agency. Their budget, 20 percent per year over the last decade. They are thinking of going to 30 percent per year. When you are compounding at 20 and 30 percent per year, this is remarkable. The number of undergraduates who graduate with degrees in engineering, in the physical sciences has gone up fourfold, fivefold. Ours is roughly flat. These are disturbing trends.

Senator REED. Just a final point. It sort of reminds me of the United States in the 1950s and 1960s where we were, through NASA, through the National Science Foundation, spending, relative to the rest of the world, huge amounts of money, and we were benefitting from it for the last 20–30 years, and now the wheel is turning, I think, the wrong way.

But thank you very much, Mr. Secretary.

And thank you, Madam Chair.

Senator FEINSTEIN. Thank you very much, Senator Reed.

OIL/GAS

Now, one question on gas. I have been reading articles that say there is ample supply to meet the demand in America today, and in fact, companies are selling oil from America abroad. Are both of those statements correct?

Secretary CHU. Well, if you look at the net import of——

Senator FEINSTEIN. I do not want to waste a lot of time. Can you say yes or no?

Secretary CHU. Right now, the net export/import of refined products has tipped a little bit towards export. We refine a lot of diesel that we do not use here we ship to, for example, Europe and we import gasoline.

The net import of petroleum and petroleum products—we are still importing 48 percent roughly.

Senator FEINSTEIN. So it is not fair to say that we have ample supply for current demand.

Secretary CHU. We do not have ample domestic supplies of oil or petroleum products today. That is correct.

Senator FEINSTEIN. Thank you very much.

NUCLEAR SAFETY

Now, let us go to the nuclear stuff. When all the reactors except for two went off line in Fukushima, it really caused me to think. One of the things that I have learned is that you cannot out-guess Mother Nature, and therefore going beyond design specification in these reactors is important.

We started last year trying to help you by including money to work with industry to improve fuel cladding, and you had mentioned fuel cladding and the small modular reactors and accident-tolerant fuel. We did this because experts believed zirconium fuel cladding played a role in Fukushima, and that when the ability to pump water into the reactor was lost at Fukushima, the zirconium cladding failed and then likely released the uranium pellets. Once the rods reached more than 1,200 degrees Celsius, the zirconium is believed to have interacted with the steam to produce hydrogen which accumulated and then exploded. Is that a fair statement?

Secretary CHU. That is certainly what we suspect. First, lots of things will melt at very high temperatures, but zirconium is known to interact at very high temperatures with water to create hydrogen. And there were hydrogen explosions.

Senator FEINSTEIN. So I think Senator Alexander mentioned that we had that meeting. I remember it well on December 14 with you and the two chairs of the BRC, and the four of us resolved that we would work together, the authorizers and the appropriators. We will shortly have another meeting and try to move from there.

This is disjointed, but the other day, the chief executive officer (CEO) of Pacific Gas and Electric Company (PG&E) walked in and said that they are ready to move nuclear waste now. I mentioned that to staff. They said so are others. Senator Murkowski's State has had big quakes. Oregon has had big quakes. We in California have had big quakes. We have two huge reactors right on the coast. I am where I am and we have to do something about it, and it is so hard to move this.

I am very frustrated by it because we know what we have to do. I think Senator Alexander, at least, and I will likely be in strong agreement that we have to move it, and we have to enable people to move their waste. Everybody talks about nuclear. It is 20 percent of what we have, and it is 70 percent of the clean energy. But if it is not safe and if we cannot do anything with the fuel other than store it next to a reactor, count me out. I mean, I do not want to be there. I now know that a 30-foot tsunami hit, and people say, "Well, do not worry. It is not going to happen on the California coast." I do not know that and you do not know that. And getting rid of the waste—securing the waste, to me, is all important.

So if there is anything that you need in this budget to do it quicker, faster, to make the decisions quicker, faster, at least I want to advocate for it.

So here is my question. Do you have what you need to get a new nuclear waste policy and find a repository and/or storage to move all of this burgeoning waste?

Secretary CHU. We would need your help and support, the help and support of this subcommittee, because as the BRC noted, in order to move forward in an expeditious way and an effective way, would require a modification of the Nuclear Waste Act. Meanwhile, we share your sense of urgency, that is why when I spoke with both of you we were taking steps to begin the standards and get licensed not only on the dry cast storage but the container that you can use to ship it and get the Nuclear Regulatory Commission (NRC) to license several of these things, we are on our way to doing that. There are a few standardized designs. The spent fuel in your sites is in very large casks not suitable——

Senator FEINSTEIN. All I know is what the CEO told me——

Secretary CHU. Right.

Senator FEINSTEIN [continuing]. That they are ready to transfer.

Secretary CHU. In addition, the BRC pointed out that there are sites where you no longer have operating nuclear reactors and yet we are spending a lot of money to guard that material. They said you can begin to consolidate those sites, which means you have to begin to work towards getting NRC-licensed containers for the dry cask storage. There are several vendors who have these designs. We are, within the Department, working towards that. So we can begin to consolidate. We have 104 operating sites, and there is probably half a dozen that are no longer in operation. It is a terrible burden to be having guards and guns for those sites.

Senator FEINSTEIN. We have a no earmarks policy. I feel passionately about this. I want to find a way to get you what you need. Can you put on a piece of paper what you need? We are to have a meeting. The chairman of the authorizing committee has already taken some action and done a lot of work, and we will be meeting and talking with him and with Senator Murkowski about that. I would like to bring to the meeting what, if we took an aggressive position, could be done from the Department.

Secretary CHU. I would love to do that. As we talked about before, there are things that we can do now this year and next year, but we would also like to get moving on things that we can do to set up this public/private that we also talked about and how to get that going as well and begin to have access to the yearly take of

the money that we are charging ultimately the ratepayers so that one has direct access to that. But we agree in the first year or so, it would need DOE action and what can we do to get it started. In the longer term, I think the recommendation of the BRC should be taken very seriously about this.

Senator FEINSTEIN. And we do.

Secretary CHU. You know, private partner organization.

Senator FEINSTEIN. I think we are both in agreement. Are we?

Senator ALEXANDER. Well, yes, sure. We are agreed on taking it seriously. Absolutely.

Senator FEINSTEIN. Well, that is what he said.

Secretary CHU. I mean, the exact design we do not really know, but all of us should be considering that very seriously.

Senator FEINSTEIN. Well, if WIPP can be used for a repository, if the State wants to do that, it seems to me that there may be other places too. But you have got to go on a search. We have got to look and I think move relatively quickly.

Secretary CHU. The good news is there are other States who are beginning to show interest.

Senator FEINSTEIN. Well, that is good. Then we need that process. So if you would do that——

Secretary CHU. Right.

Senator FEINSTEIN. That is a commitment.

Secretary CHU. Right, it is a commitment.

Senator FEINSTEIN. Thank you.

Senator Alexander.

Senator ALEXANDER. Well, I appreciate the chairman's comment. There is a scientific principle that I have forgotten which basically—I think it starts with an S which says that when you can, you try to do something the simplest way possible, not the hardest. Maybe if you want a loaf of bread, you do not go to San Francisco and then to Alaska and then down to the corner grocery store. You walk straight to the grocery store and come back.

And I think one of the things that we need to do—and I am absolutely committed to work with——

Senator FEINSTEIN. I know you are.

NUCLEAR WASTE STORAGE AND DISPOSAL

Senator ALEXANDER [continuing]. The Senator from California on this—is we need to be really creative and think of what is the simplest way to do this right, not what is the most complicated way to do it right, and look at a variety of options.

I mean, we have a really ridiculous situation here. I mean, the $35 billion just in a pile that we cannot spend. We are collecting $750 million a year, some number, that we cannot spend, and we should not be collecting it if we are not going to spend it. And the practical thing would be to probably do this in some stages because there are some closed sites where it is very expensive to have all the security just to guard some used fuel. There are some other sites, such as the two reactors in California, where they would like to get rid of their used fuel probably more rapidly than some other sites. And we ought to be able to figure out a simple way to accommodate that.

So I am looking forward to this. I am thinking of this particularly since I have such a strong ally here—I am a strong ally of hers. I think we can figure this out, and I am determined to set in motion a process that begins to deal with this problem. And I appreciate the help you have given us so far.

I want to switch gears a little bit. I have two questions I want to ask.

ADVANCED COMPUTING

One is about advanced computing. Is it your goal that the Office of Science have the world's most powerful supercomputer?

Secretary CHU. It is our goal that we not only have the most powerful supercomputer but that it is put to the maximal use. The ability to now simulate things that we could never have dreamed of simulating 10 years ago and 5 years ago are helping industry immensely. Our first hub—you call them mini Manhattan Projects, I wanted to call them Bell Lablettes——

Senator ALEXANDER. That would be good.

Secretary CHU. Because it was a mixture of the Manhattan Project and the radar lab at MIT and what I saw at Bell Laboratories.

Our very first hub was computer simulation for nuclear because anything you do in nuclear takes a long time, very expensive, NRC approval. For example, simulation so we can make safer fuel rods to the Senator's point.

Senator ALEXANDER. Well, we agree, Dr. Chu, that we ought to have the most powerful computer if we are going to maintain our competitive position in the world. When I first got here, Senator Bingaman encouraged me to go to Japan and see their simulator. At that point, Japan had the most powerful computer, and thanks to Senator Bingaman—and I was involved—we introduced legislation and pretty soon the United States had taken over the lead, and we held it for a while. Now China has the most powerful computer.

Secretary CHU. We are third.

Senator ALEXANDER. And we are third. Japan first, China.

Secretary CHU. We are third. We have five of the top 10——

Senator ALEXANDER. Well, the point I am getting to is there was a reduction of $11 million for the leadership computing facilities, and I am concerned about that. I would like to look for other parts of this budget and fill that back up because I am afraid that might interfere with our goal of having the world's most powerful supercomputer for all these goals that we share I think.

Secretary CHU. Well, we will certainly work with you and the Congress.

You may not know. We just had a workshop to help improve the transfer of technology of the national labs with industry. There was one on materials and there was one on high-performance computing. I attended both of them and gave talks at both of them.

Senator ALEXANDER. Good.

Secretary CHU. I outlined during my, I think, 35-minute talk some of the incredible achievements that we have been able to do with high-performance computing in industry to give us technological advantage.

Senator ALEXANDER. I am agreeing that they are very important. I just want to make sure that we upgrade the new leadership class of supercomputers so we can maintain that lead.

I have one question I would like to ask and that will be it for me.

EFFICIENT AUTOMOBILES

I had an interesting visit not long ago with the chief executive officer of a major automobile company who produces electric vehicles. And I said to him, well, I guess you have told your engineers that you want a 500-mile battery. He said, no, I have told them I want a $20,000 car because people who drive—and I am one who does—electric cars now on the average drive it 30 or 40 or 50 miles a day. Until we satiate that market, it is more important to me commercially to have a $20,000 car rather than a 500-mile battery.

What would your comment be on that?

Secretary CHU. I absolutely agree with you. It could go up a little bit to $23,000. When you are in that range, guess what. It is cheaper to own that car and operate it than it would be to own a $16,000 gasoline car. That is what will generate real excitement.

Senator ALEXANDER. Cheaper to own it than a what?

Secretary CHU. Than an internal combustion car. If you drive 10,000 miles and let us suppose that your internal combustion car has reasonably good mileage, combined city and highway of, let us say, 30 miles to a gallon, in today's prices you are paying $1,400 a year in gasoline. If you take a Nissan LEAF—and how much are you paying for electricity? Well, it depends, but if it is 10 cents a kilowatt hour, you are paying $300.

Senator ALEXANDER. I have a LEAF and I plug it in in my apartment at night.

And I think back—if Senator Collins will excuse me for telling a story on her time, but we never know what the marketplace will tell us. I remember when Federal Express first saw a fax coming in in the 1980s, they wondered how it would affect their business. And so Fred Smith, who is almost always right, came up with the idea of putting a FedEx fax machine on every corner, and you would walk down to the corner and send your fax and get your fax. Of course, that was not the way it worked. People got them at their homes and their offices.

And I wonder about the charging stations. I do not mean to get you in a long discussion about it. But I just plug my LEAF into the wall at night on 110-volt battery and that turns out to be plenty for me. I do not have a charging station which is recommended by most people. My guess is that it is likely that instead of a lot of charging stations everywhere, which I have supported in the past, that we will get the battery up to a certain level, the people will just plug it in at home and at work, and that will be it for 95 percent of the plug-ins.

Secretary CHU. I am with you. I think if you get a 100–150 mile range, that is going to make it work, there are people in rural areas who need more range, of course. But once you get a cheap battery, then the plug-in hybrid also becomes very inexpensive.

Senator ALEXANDER. Yes, that is true. That may be the way the market goes.

Thank you.

Secretary CHU. Well, either way, we are very pro that.

Senator FEINSTEIN. Thank you very much, Senator Alexander.

Senator Collins.

Senator COLLINS. Thank you, Madam Chairman.

And, Senator Alexander, that was a very interesting discussion, and I think that you raise a good point.

I am looking to generate that electricity for your LEAF through the production coming from deep water offshore wind energy to help provide the electricity to charge your LEAF and other electric cars.

Secretary Chu, I want to thank you again for coming to the University of Maine and seeing the consortium of public/private partnership that we have there that truly has the potential to position America as the global leader in the field of clean-energy development, as well as creating a lot of jobs in the manufacture of composite wind turbines.

OFFSHORE WIND

And it has been a very long road, as you know, to get to this point, but I am very pleased that the Department has made good on its commitment to dedicate $20 million for offshore wind demonstration for this fiscal year. I really do not want to see other countries in the world, which are making investments in offshore wind energy, beat the United States because we did not make sufficient investments to spur the kind of private investment that is going to be needed.

With the funding opportunity announcement for offshore wind advanced technology demonstration projects, we have an opportunity to really position our country well. And I know that the commitment is for $160 million over the next 5 years. To reach what I understand is the ultimate goal of the $20 million for this fiscal year, $160 million over the next 5, of $180 million over 6 years, what portion of the fiscal year 2013 EERE budget request do you plan to devote to offshore wind demonstration projects?

Secretary CHU. Well, Senator, my trusty staff just gave me the numbers.

Senator COLLINS. You have good staff.

Secretary CHU. Yes, I do.

So offshore wind funding in the fiscal year 2013 request is $36.2 million; fiscal year 2012 enacted, $37.2 million. It is essentially flat.

We do want to concentrate on offshore wind. In fact, we shifted it completely to offshore wind, as you well know, because as the good Senator from Tennessee knows, it is a mature technology.

Senator COLLINS. For onshore wind.

Secretary CHU. But he can probably get his offshore wind from the Great Lakes. But in any case, we remain committed to developing this technology.

Senator COLLINS. I do think it is very important and that it is going to require a sustained, clear Federal investment in order to secure the matching private investment and bring this to fruition.

I have learned that many other countries such as the United Kingdom, Canada, Germany, and Portugal have established test

sites for ocean energy, and they are funding the environmental permitting. They are providing the electrical infrastructure, including the undersea cabling and the grid interconnection for these test sites. And then private industry comes in and has these ready sites to build on and to test the advanced offshore wind turbines.

Do you see the Department as developing plans that would be similar to other countries and, in particular, to help them develop these offshore sites that have the grid interconnection?

Secretary CHU. I think certainly you are correct, and many of the countries in Europe which have very limited land and the ability to construct large wind farms on their land look to offshore for the same reasons we look to offshore. If you can bring the cost down, it is certainly, in terms of the impact on people, a lot less.

We would have to look at that. There was for a while—I think it is still alive—a consortium that was looking at, along the Atlantic coast, having a direct DC line in part because by constructing a DC line from—I think it is—Virginia, someplace around that, up to the mid-Atlantic States, that could be actually funded by just the ability to transmit electricity and then when people can put their turbines. So we would certainly consider looking at these partnerships to do something like that.

Senator COLLINS. I very much hope you will since that infrastructure does not exist now as you go further north, and when you look at where the population centers are, there really is great potential for tapping the offshore winds which are so strong off the coast of Maine.

Madam Chairman, I would like to, since my time has expired, submit for the record some questions that I have on modernizing nuclear weapons, a whole different issue. I was a supporter of the New START treaty. I was one of the Republicans who did vote for the treaty. And my decision was influenced in part by the administration's commitment to modernize the U.S. nuclear weapons complex, and I am concerned about the dollar levels in this budget not matching the commitment that I thought we received. So that is a complicated issue and rather than trying to get into it today, if I could, with your permission, submit those questions for the record.

Senator FEINSTEIN. Absolutely.

Both Senator Alexander and I were aware of what was involved in that. The problem is our allocation. Our allocation does not allow it because there is the security part of the budget, and there are the other portions, energy, Army Corps of Engineers. The security part is always expanding and it is pushing out the other part of the budget. So it is complicated and difficult.

But thank you.

Senator COLLINS. Thank you, Madam Chairman.

Thank you, Mr. Secretary.

Secretary CHU. You are welcome.

BLUE RIBBON COMMISSION RECOMMENDATIONS

Senator FEINSTEIN. Before we let you off the hot seat, I think you are aware that the fiscal year 2012 bill directs you to develop a strategy for the management of spent nuclear fuel 6 months after

publication of the BRC report. So I want to politely, respectfully, and in awe remind you that the clock is ticking.

I understand you have set up a task force within the agency to develop that strategy. Could you tell us a little bit about the progress you have made so far?

Secretary CHU. Well, we have stood it up. This is also, as you might guess, an interagency issue as well, and there must be lots of discussions with the other relevant parts of our Government to move forward on this. I think both of you know where I stand on it. We do want to move forward on this issue. It is a solvable problem, and I would agree with Senator Murkowski. The full quote that I remember is it takes 20 to 30 years to grow a tree, so you better plant it today.

Senator FEINSTEIN. Right. We also provided funds to jump start the BRC recommendations——

Secretary CHU. Right.

Senator FEINSTEIN [continuing]. To study management models, to begin characterizing potential geologic media for a repository, and to develop new transportation aging and disposal casks. Are you using that money, and if so, for what?

Secretary CHU. We have contracted Research and Development Corporation (RAND) to look into the details of any design of what organization might be. So we have contracted RAND.

We are in discussions with the University of Chicago to look at what would be a good business model. There are serious questions having to do with Government-liability issues. You cannot have an organization not have the liability and the Government have the liability and they go off and do something. They have to have the liability. But ultimately it is the Federal Government, DOE's responsibility, but you have got to design it right. Otherwise you can get into a very perverse situation where you have an organization doing something. Oh, by the way, they do not have the liability. So we have done things like that.

As I said before, we are looking at how to proceed with at least consolidating the storage sites. As Senator Alexander said, there are sites that are motivated to move it off their site. There are other sites, if properly compensated, would not mind. So that is part of the simple walk to the grocery store.

Senator FEINSTEIN. Have you spent the 2012 money?

Secretary CHU. I cannot say how much of it we have spent, but we have not been idle. We can give you a detail of some things we have done.

Senator FEINSTEIN. I think somebody behind you knows.

Secretary CHU. Pardon?

Senator FEINSTEIN. I think somebody behind you knows.

Secretary CHU. All he said is we have the base financial report. We will give it to you.

Senator FEINSTEIN. Yes. I really want to know. Do you need continuation of the funding in 2013 or do you have enough funds?

Secretary CHU. We can supply you with all that information.

But within our jurisdiction now, we are not sitting idly by. And the things that we hope the Congress will allow us to act on—we are moving forward on these things because many of the rec-

ommendations we believe are sound recommendations. The details need to be spelled out.

Senator FEINSTEIN. Well, could we receive in writing how these monies have been used this past year——

Secretary CHU. Sure.

Senator FEINSTEIN [continuing]. And what the plan is for 2013?

Secretary CHU. Yes.

Senator FEINSTEIN. Thank you very much.

Senator Alexander.

Senator ALEXANDER. It is the law of parsimony which is succinctness or economy. The simplest answer is the best. It is the idea of walking to the grocery store instead of going through San Francisco and coming back. That is what Spencer Wells—I first saw that in the work he—he is a National Geographic explorer who has done all the work about DNA archaeology, and he talks about the law of parsimony. I think we should apply that to what we are doing and use the creative talent of our Nobel Prize winning Energy Secretary to say, now, just forget about all the hoops we have to jump through, you know, the Congressional Budget Office.

All those things can theoretically be changed by law. So if we did not have to think about all the problems that we have, as we jump through this, what would be the common sense, simple way to accelerate finding a safe, adequate place, maybe step by step, to put used nuclear fuel? And then what steps would we need to take as Members of Congress to get it done? And I bet if we thought about it that way, that we might surprise ourselves with a simpler answer.

So I am going to try to apply the law of parsimony to the problem of used nuclear fuel.

Senator FEINSTEIN. I agree with you on the law of parsimony. I also know this is an election year, and this is controversial. We want to make progress, so it is very frustrating. I think what Senator Alexander is referring to is just tell us what you think, disregard everything else. Tell us what you think straight on.

ADDITIONAL COMMITTEE QUESTIONS

Secretary CHU. I think we had a great session in your office, and I would love to continue that because we were exploring our ideas in that session.

Senator FEINSTEIN. Okay.

No other questions?

[The following questions were not asked at the hearing, but were submitted to the Department for response subsequent to the hearing:]

QUESTIONS SUBMITTED BY SENATOR PATTY MURRAY

HEALTH, SAFETY, AND SECURITY

Question. Secretary Chu, you are proposing to eliminate the Illness and Injury Surveillance Program (IISP), the only active surveillance program across the Department of Energy (DOE) and National Nuclear Security Administration (NNSA) that allows for an immediate evaluation and monitoring of potential health effects of working at these nuclear sites. This program benefits active works—both Federal and contractor employees—who put their lives on the line on a daily basis working with nuclear material. The IISP currently monitors the health of approximately 79,000 current Federal and contract workers at 13 DOE/NNSA sites across the

country, but this budget proposes to shift the funding for this important program to the National Institute for Occupational Safety and Health (NIOSH) for unrelated health studies, which would not actively monitor and survey workers.

Can you please explain the reasoning behind your proposal to eliminate this program and shift work to NIOSH?

Answer. The reference to the Department of Health and Human Services (HHS) in the Office of Health Safety and Security (HSS) fiscal year 2013 budget request is specifically associated with the public health studies activity. That funding supports the conduct of public health studies and other activities performed by HHS on behalf of DOE through NIOSH, the National Center for Environmental Health, and the Agency for Toxic Substances and Disease Registry to provide third-party objectivity regarding the effect of DOE operations on communities surrounding DOE sites. The public health studies activity is not associated with the epidemiological studies or IISP.

DOE Office of Health Safety and Security (HSS) has re-examined every aspect of its budget to identify opportunities to reduce spending. Programs are assessed to determine:

—overall value to the health, safety, and security posture of the Department;
—if HSS is the proper organization for funding responsibility versus the DOE Program offices, other staff offices, the sites, or another department or agency; and
—overall priority among activities for which HSS has funding responsibilities.

Upon examination of the IISP, HSS determined that the program is:

—redundant of other mandatory corporate injury and accident data collection systems, such as the Occurrence Reporting Program System (ORPS) and the Computerized Accident/Incident Reporting System (CAIRS);
—better conducted and paid for by the site organization(s) since it is voluntary; and
—of a lower priority than other programs for which HSS has sole or primary responsibility, such as nuclear safety and cyber security oversight.

BONNEVILLE POWER ADMINISTRATION

Question. Secretary Chu, as you know, 19 out of 21 bipartisan members from the Pacific Northwest recently sent you a letter describing our view that the Bonneville Power Administration (BPA) environmental redispatch policy issues should be resolved in the region, where we have a long tradition of working together to resolve difficult challenges. The Northwest delegation has a long history of working together across State and party lines to support the work our region does. Let me reiterate to you that I fully expect you to consult me should you or your staff consider any proposal that would increase Federal Energy Regulatory Commission (FERC) jurisdiction in the Northwest, impact Northwest ratepayers, or affect BPA's rates.

As I told you, I am concerned about suggestions that FERC-mandated regulations are the best way to resolve this issue and other renewables integration issues. As you know, the Northwest suffered as a result of out-of-control energy markets during the West Coast energy crisis. And, our region has thrived without this additional layer of Federal regulation—for example, my understanding is that there is now more than 4,000 MW of wind connected to BPA's system.

Do you support regional solutions to renewables integration issues?

Answer. Yes, I have supported BPA's collaborative working relationships with its customers and stakeholders to seek regional and legally sustainable solutions to the environmental redispatch policy issues and other regional issues. My understanding is that BPA also is working collaboratively with its customers and stakeholders to develop open access transmission tariff provisions that address renewables integration issues in a manner that recognizes the diversity of interests involved and seeks to develop a regionally acceptable balance of them.

Let me assure you we are very supportive of maintaining the excellent and effective cooperation that Bonneville has developed with regional stakeholders, including the Northwest Congressional delegation. You and the rest of the Northwest delegation will continue to be consulted on these issues to ensure that the concerns of your constituents are understood and appreciated.

Question. Some potential solutions are short-term and others long-term. Are you aware of all of the short-term solutions BPA has taken the initiative to implement to deal with these new operational challenges?

Answer. Yes. My staff and I are familiar with many of BPA's activities, starting with reconvening the Wind Integration Forum Steering Committee to analyze solutions and their costs and benefits. My understanding is that BPA and regional stakeholders have developed a significant number of new operating tools and business practices over the past 24 months. These include:

—regulation sharing;
—intra-hour transmission scheduling;
—a new electronic bulletin board for intra-hour transactions;
—new scheduling protocols for wind generators;
—improved wind forecasting;
—flexible bilateral contracts; and
—a new dynamic scheduling system.

There have also been initiatives developed to explore ways to leverage diversity in variable energy resources between balancing authorities. These tools will be evaluated in various combinations as a further extension of the region's bilateral markets. The region has also looked at potentially reconditioning the Keys Pump Generating Plant.

Question. What additional short-term actions have not been explored in your view?

Answer. I have confidence that BPA and the many regional stakeholders involved have scoped all viable options and that all of the short-term actions have been or are currently being explored.

Question. Do you agree that long-term solutions need to make sense operationally and economically?

Answer. As with all significant infrastructure, longer-term solutions, such as new storage, additional transmission, and better utilization of the grid, can be expensive and could affect grid reliability and safety. Before deciding which long-term solutions are appropriate, I agree that BPA and the region must determine how they might affect current system operations, whether they are cost-effective and, if so, how to fairly allocate those costs consistent with law.

Question. Mr. Secretary, I have seen statements from you and your senior staff that there is a general need for more transmission. This Committee supports our Nation's energy infrastructure and wants to assure it is clean, adequate, reliable, and safe. I am concerned, however, about views that transmission isn't being built in my part of the West.

The Northwest has a long history of building transmission when it's necessary and economically sound to do so. I am aware of transmission projects that are being built or are in environmental review by various entities, including BPA. In fact, BPA recently completed the 75-mile McNary-John Day transmission project, and is looking at more transmission in the region based on need.

If there was a market for more transmission, wouldn't those additional projects already be reflected in what currently is being studied?

Answer. I have been very appreciative that utilities in the Pacific Northwest, including BPA, have been very active in planning, siting, financing, and constructing new transmission lines, and we are very pleased with BPA's completion of the McNary-John Day line under budget and ahead of schedule. I know that BPA also pioneered the Network Open Season model to determine the market demand and business case for transmission system expansion, and BPA is working with regional customers to continue to refine that model. I also want to challenge BPA and other utilities to maximize the capability of existing transmission infrastructure to gain efficiencies. We are committed to overcoming any significant barriers to construction and financing of additional transmission capacity in those cases where there is a legitimate business need for transmission.

Question. The Northwest, including British Columbia, has a long history of mutual cooperation to operate one of the largest clean power systems in the United States. I'm hearing from my constituents that you may have a differing view.

What specifically would make you conclude that there isn't operational cooperation?

Answer. I understand that there is a long history of cooperation among utilities within the Pacific Northwest. At the same time, the generation landscape in the Northwest and the rest of the United States has evolved to the point where non-utility developers play a very significant role in the wholesale power market. I am interested in challenging all utility and non-utility participants within a regional grid to work together to maximize opportunities to gain efficiencies and otherwise promote the public interest.

I believe there is significant operational cooperation between the utilities, wind developers and advocates, policy makers, and regulators in the Pacific Northwest, but there is always room for improvement. The Nation can look to the Pacific Northwest as a model for such cooperation and improvement. We want to promote parties' interests in pursuing even greater cooperation to enhance their own systems as well as building on the legacy of operational coordination that has been going on for decades.

If there are efficiencies to be captured from operational improvements in the West, what specifically do you believe they are, and who do you see as the financial beneficiaries of any savings?

Answer. Efficiencies may be achieved by a more reliable and cost-effective system with lower costs of managing system variability with more efficient use of available assets. However, issues and efficiencies will vary by region and should be worked out by an inclusive regional committee. I believe the efficiencies will bring broad benefits, but decisions must be informed by rigorous cost-benefit analyses involving all relevant stakeholders in the region.

FUEL CELL AND HYDROGEN PROGRAM

Question. Secretary Chu, this committee expressed its support last year for "stable and consistent funding, now and in the future," for fuel cell and hydrogen energy technologies.

Why was the budget for these programs cut by more than 40 percent overall? Why was the budget for these programs in Energy Efficiency and Renewable Energy (EERE) cut by 20 percent while EERE overall was increased by more than 25 percent?

Answer. The budget request for hydrogen and fuel cells has been reduced as part of rebalancing the Department's portfolio of advanced technologies. However, hydrogen and fuel cells remain an integral part of that portfolio. The budget request for fiscal year 2013 allows the Department to focus on hydrogen and fuel cell activities that will yield technology advancements in key areas—including ongoing reductions in the cost and improvement in the durability of fuel cells, reductions in the cost of renewably produced hydrogen, and improvements in systems for storing hydrogen. Within EERE, funding has been reduced for aspects of the program with less impact on research and development (R&D) progress, such as technology validation, codes and standards, and market transformation. Rebalancing the portfolio will allow the Department to focus on nearer-term transportation technologies while maintaining a robust longer-term effort in hydrogen and fuel cells to address fuel cell vehicles in the 2015 timeframe and beyond.

Question. The Obama administration has championed regulations to reduce pollution from power plants and from idling trucks. The Solid State Energy Conversion Alliance (SECA), the solid oxide fuel cell (SOFC) program in the Office of Fossil Energy, is developing and commercializing technology to address these issues that will result in highly efficient power from gasified coal and natural gas, and eliminate idling emissions with auxiliary power units

Why did the budget request propose elimination of SECA, which meets this important goal?

Answer. The Clean Coal Research Program has prioritized development of near-term carbon capture utilization and storage (CCUS) technologies, to be available for demonstration in the 2015 timeframe. As a result, fiscal year 2013 funding for longer-term fuel cell technologies has not been requested. Some SECA Core Technology R&D will continue in 2013 using prior year funding. Industry team work on fuel cell stack technology to enable low cost, 50 percent-plus efficiency, 99 percent carbon capture power generation systems will also continue—at reduced scale. Work will focus on improving fuel cell stack reliability and endurance and on preparing for the manufacturing of a 250 kilowatt (kW) SOFC system module. Demonstration and testing of this system module, which represents a building block of future multi-megawatt coal-based power plants, will be delayed from 2013 to 2015. Development and demonstration of commercial-scale fuel cell systems, as a CCUS transformational technology, can still remain on schedule for 2020, dependent upon future program funding.

As you may be aware, South Korea has made SOFCs a major part of their clean-energy plan. Additionally, the United States recently negotiated a free-trade agreement with South Korea.

Question. As I am sure you are aware, South Korea has made SOFCs a major part of their clean-energy plan. We just completed a free-trade agreement with South Korea last year.

Are you concerned that eliminating support for this technology will drive the industry overseas?

Answer. Although support for SOFC technology has been deferred to allow funding for higher priority CCUS technologies, both Core Technology and Industry Programs will continue to be supported in fiscal year 2013 using prior year funding. Industry teams have communicated their commitment and domestic investment in R&D to make progress towards improving fuel cell stack reliability and endurance.

OFFICE OF ELECTRICITY DELIVERY AND ENERGY RELIABILITY

Question. Mr. Secretary, you have called attention to the Nation's chronic underinvestment in R&D supporting the modernization of the electric power grid. I am referring specifically to grid-scale energy storage technologies and other control technologies that will enable the integration of larger shares of renewable energy, give operators better tools to manage the grid in real time, and make it more reliable and efficient.

Moreover, DOE's Quadrennial Technology Review (QTR) emphasized grid modernization and related R&D as critical to many of the strategic areas highlighted in the Review. So, I am concerned and puzzled by the substantial cuts to the Office of Electricity Delivery and Energy Reliability's (OE) R&D budgets in your budget request. For example, the Smart Grid R&D budget request for fiscal year 2013 is 40 percent lower than the fiscal year 2012 budget, and the request for energy storage R&D is 24 percent lower than last year.

It appears that some $20 million is carved out from existing OE R&D programs for an Electricity Systems Innovation Hub. I strongly support the inclusion of the Innovation Hub, but I am not comfortable with the proposal to fund it by reducing other OE R&D programs that are strategically critical to achieving many of our national energy policy goals, that have been—by the Department's own acknowledgement—historically underfunded, and that are already being reduced in the fiscal year 2013 budget request.

Could you explain your strategy for the Office of Energy Delivery, as it is reflected in the budget request?

Answer. The fiscal year 2013 budget request of $143 million for the OE supports the President's commitment to an "all-of-the-above" energy strategy that includes critical investments in innovative technologies, tools and techniques that will enhance the capabilities of a modern power grid. As such, strategic decisions were made to prioritize activities providing a balanced portfolio of projects and activities that increase electricity reliability and security nationwide by taking a systems-level approach to grid modernization, developing the computational capabilities to improve system planning and operations, and emphasizing cybersecurity. Fiscal year 2013 also reflects our ongoing efforts to continue to leverage funding throughout the Department, with other Federal agencies and the industry to maximize cost effectiveness.

Question. How is this request consistent with DOE's emphasis in the QTR and elsewhere, in which grid modernization has been identified as a key priority for DOE and the Nation?

Answer. The fiscal year 2013 request factors in grid-related R&D investments across the Department such as storage, power electronics, and control architectures that are being explored within Advanced Research Projects Agency-Energy (ARPA–E) programs. Strategic priorities and tradeoffs were made to maximize resources and results while at the same time minimizing programmatic impacts. Investing in the Electricity Systems Hub will allow us to focus on the seam between transmission and distribution—a pinch point of grid modernization where power flows, information flows, policies, and markets intersect—to tackle the critical issues and barriers associated with integrating, coordinating, and facilitating the numerous changes that are happening system-wide. The Hub activities will accelerate adoption of new technologies within a policy and regulatory framework that allows efficient utilization of assets and capital investment, including minimizing consumer costs for grid modernization.

Question. What steps will the Department take to ensure that any Electricity Systems Hub funding does not come at the expense of key ongoing OE R&D priorities, including energy storage, advanced modeling, and smart grid analytics?

Answer. The Grid Tech Team, with DOE-wide representation, has been established through the Office of the Undersecretary of Energy to focus on improving communication and coordination across the Department on grid-related R&D. This diverse group is tasked with developing an internal strategy and identifying priorities for grid R&D. The Electricity Systems Hub is one of many topics that are under the purview of this group and efforts will be made to balance strategic priorities and limited resources. The Electricity Systems Hub will serve as a platform that can support ongoing OE R&D priorities, including energy storage, advanced modeling, smart grid analytics, cybersecurity, as well as the ARPA–E investments in power electronics and control architectures.

Question. Mr. Secretary, I am likewise concerned that DOE is proposing to fund multiple Electricity Systems Innovation Hub with a $20 million budget, while each of DOE's previous innovation hubs has been funded at $20–$24 million each. In the Pacific Northwest, we are keenly aware that "one-size-fits-all" solutions to electric

grid issues don't work—there are simply too many key differences between regional systems.

But at the same time, the Northwest and its institutions have a history of pioneering technologies and grid management paradigms (such as Phasor Measurement Unit deployment and some of the earliest real-world experiments in demand response) that have been subsequently and successfully exported to regions across the country and other nations across the globe. Moreover, the stated purpose of the hub concept is to accelerate innovations that can deliver national outcomes, such as enhanced energy security, and to enable new markets and technologies that will bolster U.S. leadership in global energy markets.

Please describe the steps the Department will take to ensure that the effectiveness of any Electricity Systems Innovation Hub(s) will not be diluted by the proposed budget number, coupled with the concept of multiple hubs. If the Congress chooses to fund the hub(s) as proposed, will the Department seriously consider limiting the number of hubs to a manageable, non-dilutive number?

Answer. Ideally, the Electricity Systems Hub will be comprised of two to three regional hubs that will communicate, coordinate, and collaborate on a regular basis. Linking activities and comparing results from the different regional hubs will help identify solutions that can be applied across the Nation while simultaneously addressing unique regional challenges. The decision to pursue one, two, or three regional hubs will ultimately depend on the cost-share generated to leverage the Federal investment and the quality of the applicants.

Question. Likewise, will DOE consider a mechanism that allows for linkages or participation in multiple hubs, in order to maximize learning, innovations, and commensurate benefits for consumers?

Answer. Regional hubs are expected to routinely communicate, coordinate, and collaborate in order to identify innovative solutions that are broadly applicable. The Electricity Systems Hub will produce valuable information that will be disseminated to various stakeholders to ensure shared learning.

Question. DOE's proposed 3-to-1 industry-to-Government cost share for the Electricity Systems Innovation Hub sets a potentially high hurdle and, by some accounts, will be prohibitive to the assembly of successful public-private partnerships given the patchwork of regulatory requirements under which electric infrastructure owner/operators including utilities currently operate. Please explain the Department's rationale in requiring such a high private sector cost share: can the Department cite successful precedents?

Answer. DOE recognizes that a 3-to-1 cost share is an ambitious target, but the ratio has been proposed to ensure stakeholder commitment to the regional hubs. Teams are expected to apply with representation from industry, academia, national labs, utilities, States, and other relevant stakeholders. DOE believes there will be sufficient interest in the Electricity Systems Hub to generate significant cost-share which includes direct funds and contributions in-kind. However, we understand your concern about this significant a cost-share requirement, and DOE will evaluate this factor as it develops the solicitation.

WATER POWER PROGRAM

Question. Secretary Chu, as you well know, my State of Washington relies on hydropower for the majority of its electricity supply. Hydro is the main reason the Northwest as a whole has a lower air emissions profile and enjoys some of the lowest electricity rates. Northwest projects are at the forefront of innovation, employing new technologies, operating regimes, and environmental enhancements—some of which resulted from the DOE waterpower program.

You have indicated your support for the potential of hydropower as an "incredible opportunity" that our "lowest cost, clean energy option," and the thousands of jobs it can create across our country.

The Water Power Program also supports R&D on emerging technologies in the marine and hydrokinetics arena. Washington State has tremendous potential for this technology, and if we can get this off the ground, this work could provide the basis for a base load source of clean energy—a consistently stated priority of yours and the President.

But despite these factors, your budget yet again proposes to cut the program—this year by 66 percent from fiscal year 2012 levels.

Why isn't the Water Power Program more of a priority for the Department?

Answer. A robust $59 million budget in fiscal year 2012, a nearly 70 percent increase over fiscal year 2011, has allowed the Department to continue and complete a number of important water power technology R&D projects. The $20 million requested in fiscal year 2013 would allow the Department's Water Power Program to

complete the majority of its ongoing research efforts to advance water power technologies and accelerate their market adoption. This funding level would allow DOE to support a number of water power technologies for both conventional hydropower and the emerging marine and hydrokinetic (MHK) energy technologies. For hydropower specifically, DOE selected 16 new innovative hydropower technology development projects for funding in fiscal year 2011, and that work will continue into fiscal year 2012 and fiscal year 2013. Additionally, DOE expects to continue its efforts to analytically quantify the benefits that conventional and pumped-storage hydropower provide to the electric grid, which can also support the integration of variable renewable resources like wind and solar. For MHK technologies, fiscal year 2013 activities will focus on developing and demonstrating a suite of technologies that harness the energy from wave, tidal, and current resources. Specifically, MHK research is expected to focus on development and maintenance of advanced open water test infrastructure for MHK devices (including at the Northwest National Marine Renewable Energy Center) and research into the costs and performance of innovative, early-stage MHK systems and components. Finally, the Department anticipates completing resource assessments in fiscal year 2012 and fiscal year 2013 to accurately characterize all opportunities for water power development. DOE intends to use data from ongoing techno-economic MHK assessments to establish baseline levelized energy costs for these new devices, which DOE will use along with resource assessments to evaluate the opportunities for further innovative water power R&D. The identification of potential future water power research needs for beyond fiscal year 2013 will consider available opportunities and the progress of ongoing research efforts.

Question. You recently characterized the Department's intention to continue to support the development of hydrokinetic renewable energy as distinct from run-of-river hydropower and new hydro at existing dams, which you described as "very mature technologies."

However, there are no currently active solicitations under the Department's Water Power Program, for hydrokinetic or any other technologies.

Can you clarify when the Department intends to issue new funding opportunities for hydrokinetic technologies, and what aspects of hydrokinetic development will be supported by these solicitations?

Answer. DOE is pursuing an aggressive research, development, and demonstration effort to determine the technical and economic viability of a wide range of MHK technologies. We seek to advance the technology readiness of MHK systems through cost-shared industry research and demonstration projects. DOE is currently supporting more than two dozen such projects and has recently notified two applicants whom had been selected as alternates for previous funding opportunities that they will now receive funding. The Department is currently evaluating options for future funding opportunities for MHK technologies and will notify interested parties via a Notice of Intent or Funding Opportunity Announcement when more information becomes available.

The Department also intends to complete a comprehensive techno-economic assessment in 2013 that will assess the viability of MHK systems and identify strategic opportunities to develop and deploy these systems in the near term. DOE is also addressing environmental and permitting issues in order to proactively address environmental performance issues and lower these costs to developers. Finally, the Department has also established three National Marine Renewable Energy Centers that are centers of excellence for ocean energy, and these Centers will cost-effectively support industry demonstration and performance monitoring (technical and environmental) efforts. In fiscal year 2012, we are investing heavily in testing infrastructure for these Centers as directed by the Congress, and the Northwest National Marine Renewable Energy Center recently began its first rounds of in-water testing.

QUESTIONS SUBMITTED BY SENATOR MARY L. LANDRIEU

STRATEGIC PETROLEUM RESERVE

Question. Mr. Secretary, I see that in your budget you propose using the $2.4 billion remaining in budget authority related to the 2011 Strategic Petroleum Reserve (SPR) selldown to purchase 27 million barrels of oil to replenish the reserve. I am very interested in the management of the SPR, not only because of its great importance to national security, but also because it is located on the gulf coast and largely stocked with oil produced on the gulf coast. I will point out that this purchase of 27 million barrels—which will not even refill the reserve—is coming at a time when oil prices are relatively high. Given that I opposed the initial sale of oil from the

SPR, I am concerned about your plans to both manage and refill it, particularly in light of continued threats of unrest in the Middle East.

Will this remaining balance of $2.5 billion be adequate to replenish the emergency supplies of oil we so quickly sold off last summer, given that $2.4 billion will purchase roughly 24 million barrels of oil, which is short of the 27 million you intend to buy and the 31 which were actually sold out of the SPR?

Answer. The SPR will develop an oil acquisition plan to repurchase, over a 5-year period beginning in 2013, 27 million barrels of the 31 million barrels sold using funds available in the SPR Petroleum Account, which will provide the Nation with sufficient import protection.

Question. With the threat of further unrest in the Middle East, will the Department of Energy be recommending a further selldown of the SPR, and if so will it propose a timely replenishment of the stocks sold off?

Answer. The United States and the International Energy Agency are monitoring the global markets and are in daily communication on supply and distribution issues. The SPR has not been directed to sell additional stocks and we cannot speculate about the replenishment of supplies.

Question. Mr. Secretary, I also see that funding for both Research and Development activities—activities like developing both new reactor technologies and ways to extend the life of our existing fleet—are being cut by 35.9 percent. With this funding being used to develop the next generation of reactor technologies, including Small Modular Reactors and the Next Generation Nuclear Plant (NGNP), and extend the life of existing reactors, I am concerned about the effect this cut will have on nuclear technology into the future.

Where does this reduction in funding leave our efforts to develop new reactor technologies?

Answer. The Advanced Reactor Concepts research and development program remains an important program for the Department. Reflecting difficult resource allocation choices, R&D activities associated with lead/lead-bismuth and fluoride high temperature reactors will be significantly reduced. The energy conversion R&D, which includes supercritical CO_2 turbomachinery and related heat exchangers, will be consolidated under the Small Modular Reactor Advanced Concepts R&D Program in fiscal year 2013. Impacts to sodium-cooled fast reactor R&D will be minimized as much as possible given this concept's potential role in addressing fuel cycle issues, and in order to sustain collaborations conducted under international programs such as the Generation IV International Forum and various bilateral international agreements. Fuel development efforts that support sodium-cooled fast reactor technology also continue under the Fuel Cycle R&D budget. The funding request for the Next Generation Nuclear Plant Demonstration Project is sufficient to fund the research activities in fuels and graphites, including essential irradiation and post-irradiation examination.

Question. What effect will this have on our existing reactor fleet, given that these funds are also used to extend the life and improve the performance of existing reactors?

Answer. The Light Water Reactor Sustainability (LWRS) program is extremely valuable for addressing both the safety and economic issues that could affect how long our existing fleet of nuclear power plants operates. Under an austere budget, we made some very difficult prioritization decisions. To reduce costs, we are maximizing opportunities for cost-share with industry by working very closely with the Electric Power Research Institute (EPRI). DOE believes the budget request maintains the necessary research on the most critical issues to support the continued operation of our existing nuclear fleet.

QUESTIONS SUBMITTED BY SENATOR FRANK R. LAUTENBERG

Question. The fiscal year 2013 budget dramatically cuts funding for the Princeton Plasma Physics Laboratory (PPPL) and general fusion research. In response to these cuts, DOE's Fusion Energy Sciences Advisory Committee (FESAC) sent a statement to the Office of Science stating that "real damage" would be done to U.S. fusion research. In addition, the committee said the proposed funding levels would not support a viable fusion research program and that U.S. scientific leadership would be jeopardized.

How do you respond to the concerns of the scientists on the FESAC?

Answer. The fiscal year 2013 budget proposal was developed with a long-term vision for the U.S. fusion energy sciences program. When viewed within the context of competing national priorities for energy research, the fiscal year 2013 budget addresses the highest priorities in the realm of fusion energy research.

With the fiscal year 2013 budget request, the U.S. continues to have a strong investment in fusion research. The United States is a partner in the International Thermonuclear Experimental Reactor (ITER) Project, which is designed to be the first magnetic fusion facility to achieve self-sustaining ("burning") plasmas and, thereby, open a new era in fusion energy science. The proposed budget will sustain a viable U.S. program that will continue to make significant contributions to resolving vital issues in fusion research and, thereby, contribute to building the scientific foundation needed to develop a future fusion energy source.

The fiscal year 2013 budget positions the fusion program to maximize the scientific return on our investment in ITER; address gaps in materials science, required for harnessing fusion energy; continue to steward the broader plasma sciences, taking advantage of cross-agency synergies and provide opportunities for U.S. scientists to conduct research on a $1 billion-class of new international superconducting facilities. Although the proposed budget will present challenges, it will allow the U.S. to continue to have a dynamic domestic fusion program.

Question. DOE administers the Weatherization Assistance Program (WAP), which creates jobs and helps reduce energy costs for low-income families. Due to reductions for the program in fiscal year 2012 appropriations, you chose to allocate funds for project year (PY) 2012 based on remaining funding from the American Recovery and Reinvestment Act (ARRA). Unfortunately, since the Christie Administration was slow to spend the ARRA funding, New Jersey received zero funding under the WAP for project year 2012. Last month, I sent you a letter asking you to reconsider DOE's decision to eliminate weatherization assistance funding for New Jersey for project year 2012.

Have you decided whether to adjust the funding formula for project year 2012 to ensure that New Jersey and other States will receive at least some weatherization funding this year?

Answer. The 2012 Consolidated Appropriations Act provided $65 million to WAP for allocation of formula grants to grantees for the 2012 fiscal year—a funding level that is less than one-third of the amount provided in the 2011 Appropriations for the WAP. The Congress also provided the Secretary of Energy with the authority and a strong recommendation in House Report language to use an alternate methodology other than the formula established in regulation to distribute the available funding—taking into consideration unspent ARRA balances and other resources available to grantees in 2012 from the U.S. DOE.

The Secretary exercised this authority and allocated program year 2012 funds to ensure two major outcomes:

—grantees that spent their ARRA funds on time have adequate DOE funds to maintain their operations at post Recovery Act levels; and

—all grantees have adequate funds to operate throughout program year 2012, given the fund balances that are already allocated but remain unspent.

The allocations were based on the following criteria:

—Use of an appropriation amount of $210 million as the base "PY12 Target Allocation" for establishing funding for each grantee. This is the amount that would have been awarded to grantees through the funding formula as established in the regulations based on a $210 million Appropriation by Congress in 2010.

—Whether a significant portion of the "PY12 Target Allocation" was available in ARRA balances for at least one-half of the program year 2012. Program year 2012 "Target Allocations" were adjusted downward for grantees with significant ARRA balances.

The DOE contacted the New Jersey Department of Community Affairs explaining the alternate formula and DOE's determination to allocate zero funds to the State of New Jersey, which has a total of $26.2 million in unspent WAP funds as of August 2012.

QUESTIONS SUBMITTED BY SENATOR JON TESTER

FUEL CELLS FOLLOW UP

Question. You stated that you have met with members of the fuel cell and hydrogen energy industry "several times" to discuss the industry and if you are taking adequate measures to keep it from moving overseas.

Please provide the dates of the occasions that you have met personally with members of the fuel cell and hydrogen energy industry to discuss these issue, and a list of attendees at those meetings.

Answer. The Secretary met with members of the fuel cell and hydrogen energy industry on the following occasions:

September 29, 2009: Tour and meetings at Rolls-Royce Fuel Cell Systems in North Canton, Ohio;

March 3, 2010: Meetings at United Technologies Research Center included meetings on Fuel Cells;

April 13, 2010: Met with Jadoo Power, as part of a constituent event with Rep. Doris Matsui;

August 22, 2011: Met with the South Carolina Hydrogen and Fuel Cell Alliance;

January 9, 2012: Meetings on Fuel Cell Technology with manufacturers at the Detroit Auto Show;

March 5, 2012: Visited the Fuel Cell Research Lab at Indiana University-Purdue University, Indianapolis; and

May 10, 2012: Meetings and panel discussion with the Hydrogen and Fuel Cell Technical Advisory Committee.

Question. In your answer to my question regarding our commitment to this technology compared to that of Japan, Germany, and South Korea, you spoke only about stationary fuel cells.

What are you doing to support the introduction of fuel cell electric vehicles and hydrogen infrastructure, does industry believe it is sufficient, and if not, are you prepared to cede this industry to overseas competitors?

Answer. The Department includes hydrogen and fuel cells as an integral part of its advanced transportation technologies portfolio, maintaining the necessary pace of advancement in anticipation of fuel cell electric vehicle (FCEV) commercialization in the 2015 timeframe and beyond. To support the introduction of FCEVs and hydrogen infrastructure, the Department is focusing on critical research and development (R&D) to address the key barriers of hydrogen production and delivery, as well as key analyses to determine technology gaps and focus areas. For example, the Department actively monitors the efforts and plans of Japan, Germany, and South Korea along with other countries, through the International Partnership on Hydrogen and Fuel Cells in the Economy, which is comprised of 17 nations and the European Union, as they relate to deployment of FCEVs and hydrogen infrastructure. Domestically, the Department coordinates closely with similar FCEV and hydrogen infrastructure planning efforts and State initiatives including in Hawaii, California, and New York. The Department also provides critical analysis of issues related to FCEV deployment and hydrogen infrastructure and continues to support data collection from FCEVs and key refueling infrastructure technologies ($2.4 million for five projects announced on July 18, 2012). In addition, the Department plans to continue analyses and workshops to leverage synergies with natural gas infrastructure.

HYDRAULIC FRACTURING

Question. Mr. Secretary, both your Advisory Board Shale Gas Production Subcommittee and the National Petroleum Council have released reports about Hydraulic Fracturing and domestic production of oil and gas. These reports provides suggested steps Government, industry, and researchers need to take to assure that we have a balanced regulatory regime to protect development and citizens. If there isn't public trust that this technology can be used safely, that will inhibit future development. I believe the industry is starting to recognize it.

With this new input on from these independent panels, what is your agency doing to implement the recommendations?

Answer. The Department of Energy (DOE) is working with the Environmental Protection Agency (EPA) and United States Geological Survey (USGS) to identify research priorities and collaborate on research associated with development of our Nation's abundant unconventional natural gas and oil resources. Each agency has a different combination of experiences, research strengths, personnel, resources and mission mandates, leading to complementary research core competencies. The three agencies fiscal year 2013 budget request to support this work is $45 million, with DOE requesting $12 million. In addition, the Appalachian Shale Recommended Practices Group (ASRPG), a consortium of 11 of the Appalachian Basin's largest natural gas and oil producers, have announced the creation of the Recommended Standards and Practices for Exploration and Production of Natural Gas and Oil from Appalachian Shale. The ASRPG Recommended Standards and Practices are consistent with the key recommendations of both the U.S. Secretary of Energy Advisory Board's (SEAB) final report issued in November 2011, and the National Petroleum Council's (NPC) Prudent Development report issued in September 2011.

Question. What do you still need to do?

Answer. The administration created a new Interagency Working Group to Support Safe and Responsible Development of Unconventional Domestic Natural Gas Resources. This new partnership will help coordinate current and future research and

scientific studies, better positioning the Obama administration to ensure that continued expansion of natural gas and oil production happens safely and responsibly as part of an all-of-the-above approach to American energy.

Question. Do you believe that States and companies are taking the proper steps to fulfill these recommendations as well?

Answer. I do believe States and companies are addressing environmentally prudent methods for shale gas development. Fundamental to ensuring public safety and community health is the commitment to excellent environmental performance and continuous improvement that must be maintained by industry and Government. Shale gas development is subject to multiple Federal and State regulations. The States understand the local geology and hydrology. They are regulating hydraulic fracturing effectively and continue to get better by working with public and private agencies. State oil and gas commissions and many operators are collaborating on the development of a public Web site to report chemicals used in their hydraulic fracturing process based on the Interstate Oil and Gas Compact Commission and Ground Water Protection Council chemical disclosure submission. The industry is educating operators on industry best practices. It supports the disclosure program created by the Ground Water Protection Council for listing chemicals in fracturing fluids on the Web site registry called FracFocus, which already includes data for 16,000 wells from more than 200 companies. Five States have adopted FracFocus in their rules. Also, the State Review of Oil and Natural Gas Environmental Regulations (STRONGER) is a nonprofit, multistakeholder organization whose purpose is to assist States in documenting the environmental regulations associated with the exploration, development, and production of crude oil and natural gas. Since its initiation, the state review process has completed the reviews of 21 State programs responsible for the regulation of more than 90 percent of the domestic onshore production of oil and natural gas. In addition, the industry is establishing regionally focused councils of excellence in effective environmental, health, and safety practices.

Question. Much of these reports, in particular the DOE Advisory board's two 90-day reports focus on fracking being used for shale gas.

Do you believe the same suggestions apply to fracking for oil, like in the Bakken?

Answer. Safety and environmental sustainability underpin our Nation's energy security concerning both oil and natural gas. Some of the results from ongoing research by the DOE, EPA, and USGS may have application to the use of hydraulic fracturing of both oil and gas shale formations.

Question. Your budget includes only a small increase of $2 million for the natural gas technology R&D program.

Do you think your budget request is sufficient to address the recommendations of the previously mentioned committees and continue the needed research to better understand fracking?

Answer. DOE's fiscal year 2013 Natural Gas budget request for shale gas will focus on the research recommendations received from the Subcommittee of the Secretary of Energy Advisory Board, including the study of methane migration, chemical interactions between fracturing fluids and different shale rocks, induced seismicity triggered by hydraulic fracturing and injection well disposal, development of green fracturing techniques, and improved casing and cementing integrity.

OFFICE OF INSPECTOR GENERAL REPORT ON THE DEPARTMENT OF ENERGY LAB CONTRACTING COSTS

Question. Mr. Secretary, the Office of Inspector General (OIG) cited in their Special Report of Management challenges at the Department of Energy that a $1 billion is spent annually to employ 4,000 staff to protect sensitive sites and labs around the country. These protective services are provided by 25 different contracts that Government Accountability Office (GAO) labeled (in a separate process), ". . . not uniformly managed, organized, staffed, trained, or compensated." Not only do questions like these raise concerns about the security of these sites they also raise questions about the use of Federal funds.

OIG suggested three options to help reduce costs: A master contract, consolidating by region and/or federalizing the protective force.

Understanding that not all these options are acceptable to DOE, what actions are you taking to implement the recommendations of the OIG report and reduce the contracting costs?

Answer. As the OIG report contends, there are nearly 4,000 protective force staff involved in providing security for DOE physical, nuclear, and information security assets throughout the complex. Approximately one-half of those work under the purview of the National Nuclear Security Administration (NNSA). DOE/NNSA has taken the lead in implementation of graded protection and risk-informed decisions

that will yield significant efficiencies in the use of Federal funds that are necessary for ensuring the maintenance and security of our indispensable national nuclear security deterrent. Similarly, DOE's Office of Science (SC) has developed a Baseline Level of Protection, based on national standards and rigorous peer reviews, which provides a common starting point for SC in ensuring adequate physical controls, development of the site-specific security posture of each of the SC laboratories, and streamlined budget formulation and execution processes that minimize the burden on the sites while providing sufficient information to advocate for security program resources and maintain the flexibility to allocate resources.

DOE/NNSA agrees with IG–858 and previous GAO reports with respect to the lack of uniformity and consistency regarding the contracting of protective force services at DOE/NNSA sites. The Office of Defense Nuclear Security (DNS) recently completed a detailed analysis of the various contracting models currently in place throughout the nuclear security enterprise and confirmed that, while the type of contract has no bearing on the effectiveness of security, separate prime contracts; i.e., those that are procured separately from the management and operating contractor, are generally more cost-effective for procuring contractor protective force services.

Informed by that analysis, NNSA initiated the procurement of a consolidated protective force contract for security services at the Pantex Plant and Y–12 National Security Complex in November 2011. This procurement is running largely in parallel with the consolidated management and operating contract procurement at the same sites, and is expected to yield proportionally similar cost savings and efficiencies. With respect to the overall protective force contracting approach, DNS is working with the NNSA Office of Acquisition and Project Management to implement a more consistent contracting approach for future protective force contracts throughout the nuclear security enterprise. The pros and cons associated with regional contracts or the creation of a "master" contract for all sites remain under consideration. Important factors that must be weighed include the distinction between nuclear and non-nuclear sites, and the need to balance consolidation and cost-efficiency efforts with aggressive Departmental small business goals.

There remains no evidence of cost-benefit or performance-related enhancements associated with federalizing fixed site protective forces. Rather than suggesting a fresh look at the situation as suggested by the OIG report, the current budget environment affirms the Departmental decision to minimize long-term governmental obligations by maintaining the current fixed site contractor guard force arrangement. The "potential benefits" of federalization cited by the OIG report are being successfully addressed under current contracting models through the implementation of Enterprise-wide Mission Essential Task List (EMETL)-based training, standardized uniforms and equipment procurement initiatives, and renegotiation of collective bargaining agreements that are coming due in 2012. Through the "Implementation Plan for the 29 Recommendations of the Protective Force Career Options Study Group" dated January 2011, DOE/NNSA has taken decisive action toward achieving its goals of fulfilling the needs of the Government in terms of effectively and efficiently contracting for protective force services at its fixed nuclear security sites, while simultaneously addressing the critically important needs of the contractor employees who perform these essential tasks.

IG–858 recommended the engagement of external public sector security experts to review the issue of protective force configuration with a view toward reigning in the Department's cost structure. DOE and NNSA have been actively engaged in a nuclear security collaboration effort to "harmonize" the manner in which nuclear security operations are implemented throughout the Government. Although the Department of Defense and DOE/NNSA have significantly different challenges in terms of their respective physical security work forces, the similarity of tasks has helped to inform the manner in which NNSA approaches its tactical, budgetary and contractual approaches toward accomplishing the nuclear security mission. As existing contracts come up for renewal, DOE and NNSA are invoking more consistent and cost-efficient strategies. In addition to the ongoing Pantex/Y–12 procurement, work has begun to initiate a review of the acquisition strategy for protective force services at the Sandia National Laboratories, Lawrence Livermore National Laboratory and Los Alamos National Laboratory. SC has also conducted a separate independent benchmarking study comparing SC laboratory security to security at research institutions operated by other Federal agencies and the private sector. The result of these efforts was the SC Baseline Level of Protection, a streamlined budget formulation and execution process, and program management approach to implement technologies where possible and reduce recurring contractor costs.

GEOTHERMAL ENERGY BUDGET

Question. Secretary Chu, I firmly believe geothermal power has the potential to be a significant part of our base load energy portfolio in the future. Senator Murkowski and I have a bill which would greatly expand our understanding of geothermal potential, expand use of enhanced geothermal systems and allow to co-leasing of geothermal and oil wells, helping to secure our energy future.

Massachusetts Institute of Technology (MIT) estimates, ". . . that with a reasonable investment in R&D Enhanced Geothermal Systems could provide 100 GW of cost-competitive generating capacity in the next 50 years." That is why I am excited to see a 72-percent increase in Geothermal funding in the department's requested budget and an expanded area of study.

Could you talk in detail about the new focus and long-term plan for the geothermal office?

Answer. In 2011, the Program convened a Blue Ribbon Panel comprised of renowned geothermal experts from industry, academia, and the national laboratories. The panel recommended that the Program continue to invest in the promising potential of Enhanced Geothermal Systems (EGS) but to also fund critical research needed to increase exploration success for hydrothermal resources.

Consistent with these recommendations, the Program's technology portfolio focuses on two closely-related areas, which balance a near-and long-term investment strategy: hydrothermal and EGS. Innovative exploration technologies and tools support risk reduction for both near-term hydrothermal systems and long-term EGS. Additional ongoing investments in economic and systems analysis will help identify ways to reduce nontechnical costs associated with these efforts.

The Program budget request for fiscal year 2013 reflects confidence that EGS can be a viable and significant-scale baseload energy resource: in fiscal year 2012, the first of several EGS demonstration projects funded by DOE has clearly shown the potential to produce 5 MW from an engineered reservoir in a deep, impermeable, and unproductive rock body, with far greater additional potential at this site. This partially achieves a critical program goal 8 years ahead of the original forecast. Therefore, the program will pursue the development of innovative technology solutions through closely managed strategic R&D, industry-run EGS demonstration projects, and a Government-led EGS test site(s) focused on EGS optimization and validation. Simultaneously, the program will advance technologies needed to reliably identify new hydrothermal resources, thus developing a lower and more predictable risk profile for the industry to accelerate deployment in the near and long term. Concurrently, the program has initiated a first-ever project to build broad-scale geothermal resource maps that can be used by industry to lower the risk of finding new prospects.

At the same time, the Program maintains a complementary effort on low-temperature and co-produced geothermal resources, and will commence a field project in fiscal year 2013 to actively collect operating data from a new coproduction site to better frame this broad area of potential.

Question. Could you also discuss your plans for increasing investment in this technology?

Answer. To bring more clean energy online in the near-term, the detection and imaging of subsurface geothermal reservoirs needs to be reliable and cost-effective. Upfront risks related to unsuccessful exploration activities are also a major barrier to increased development of geothermal resources in the United States. Accordingly, a major objective of the Program is to increase the probability of success of finding geothermal resources, and to lower the attendant cost. Lowered risks and costs and greater certainty of outcomes has a profound impact on the sector's ability to secure attractive financing and backing for renewable energy projects.

Some of the most promising technologies include innovative geophysical and geochemical exploration technologies, which will allow the prediction or location of hidden hydrothermal resources. These technologies will allow more reliable and predictable subsurface temperature, physical rock properties, and permeability.

The program is particularly interested in faster and less costly drilling technologies (spallation or laser drilling), zonal isolation or diverter technology development, and monitoring tools. These and other technologies are currently funded through our EGS program. The ability to develop sizeable and scalable fracture networks through which fluid can circulate and pick up heat is integral to EGS reservoir sustainability.

Another example of promising work that has the potential to benefit a variety of other sectors is geothermal mineral extraction technology. Strategic minerals, such as lithium used in advanced car batteries, are often dissolved in the geothermal fluids that are pumped to the surface to produce power. This technology extracts

lithium from the geothermal brine, combined with electricity generation, before the brine is re-injected into the subsurface.

In addition, the Program is pursuing development of a Government-led EGS test site (Site) focused on EGS optimization and validation. The goals of the Site include testing new technologies, and demonstrating the ability to drill and complete the first-ever horizontal well in a geothermal reservoir. The Site is a critical step towards creating a commercial pathway to EGS, as it will promote transformative and high-risk science and engineering that the private sector is not financially or operationally equipped to undertake. This investment is in fact similar in scope and potential impact to the ground-breaking DOE investments in shale gas from 1978 through 1991, which led to the shale gas revolution.

HYDRO BUDGET

Question. Mr. Secretary, in March of 2010, you signed a memorandum of understanding (MOU) with the Army Corps and the Department of Interior to identify existing Federal dams with the potential to sustainably install or retrofit them with hydropower. In evaluating 530 sites in this process, 191 sites were identified as having some hydropower potential and 70 have economic potential for retrofitting or installing to create 225 MW of power.

This MOU also agreed to continue research in traditional hydro to create more fish-friendly and efficient turbines to update our infrastructure (since many of these improvements only take a few years to pay themselves back).

Yet this year's budget cuts the Water power budget by two-thirds, shifting almost entirely towards marine and hydrokinetic power.

My question is does this budget request support your commitments made in the 2010 MOU for developing advanced hydropower technologies?

Answer. A robust $59 million budget in fiscal year 2012, a nearly 70-percent increase over fiscal year 2011, has allowed the Department to continue and complete a number of important water power technology research and development projects, including a nationwide assessment of energy opportunities at nonpowered dams across the United States. The $20 million requested in fiscal year 2013 will allow the Department's Water Power Program to continue and complete a number of its ongoing projects to advance water power technologies and accelerate their market adoption, including several efforts that have been coordinated and conducted jointly with the Bureau of Reclamation and the Army Corps of Engineers. These efforts include demonstrations of new, innovative hydropower technologies including the Alden Fish-Friendly Turbine as well as low-head small hydropower technologies at Bureau of Reclamation facilities, the Water Use Optimization Toolset and various water quality modeling efforts to aid in the prediction and improvement of water quality at Federal hydropower facilities, and new and refined assessments of opportunities to develop new hydropower facilities. Based upon the results and evaluation of ongoing efforts, especially the identification of new hydropower development opportunities and the potential for hydropower and pumped storage technologies to help integrate other sources of renewable energy into the electric grid, the Department will determine the needs and opportunities for future water power research beyond fiscal year 2013.

GEOTHERMAL HEAT PUMPS

Question. Mr. Secretary, it's my understanding that buildings dominate our Nation's energy use, consuming more than one-half of our electricity and natural gas. Buildings also account for more than 40 percent of carbon emissions in the United States. With that being the case, I think the Department of Energy ought to be doing more to focus on the steps we can take to reduce the energy we use to heat and cool our buildings and homes, including promoting proven technology like geothermal heat pumps.

What steps does the Department plan on taking to address the market barriers that prevent commercial building managers and homeowners from investing in energy efficient technologies like geothermal heat pumps (GHP)?

Answer. Key barriers to market penetration of energy-efficient technologies like GHPs include high first costs, limited design and installation infrastructure, and lack of awareness among consumers, policymakers, and regulators about technology benefits. The Department is supporting initiatives that seek to overcome these barriers through technology development and demonstration, education and training, and policy analysis. Through the Recovery Act, the Department is currently funding 26 GHP demonstration and analysis projects and 30 Energy Efficiency and Conservation Block Grant projects that involve GHPs. These projects, as well as input from industry experts and stakeholders, will inform future efforts, which will be de-

scribed in a report to the Congress that is in the final stages of preparation. The report describes the Department's GHP research, development, and demonstration activities and plans, as well as plans to promote the use of GHP technologies; analyze policies that affect consumers and manufacturers of GHPs; and collect, analyze, and disseminate publicly available data and information about these products.

DISTRIBUTED WIND

Question. Secretary Chu, while we're all aware of the myriad benefits of large, industrial-scale wind projects in the United States, there is great potential for smaller-scale "distributed wind" projects as well. In Montana, we have second best wind potential in the U.S. In fact, smaller wind turbines or projects can often result in outsized benefits to rural communities, farmers, ranchers, and other citizens. And buy-in for smaller wind translates into social acceptance of larger-scale projects.

It can also help to reinvigorate our Nation's manufacturing base given that 95 percent of the small wind systems installed in the U.S. in 2009 was manufactured domestically and much of that manufacturing activity occurred in economically challenged rural areas.

In fiscal year 2010, the DOE spent approximately $80 million on research, development, and demonstration (RD&D) for wind energy, but only about 2 percent of that total, about $1.6 million was for small- and medium-sized wind. By contrast, your agency spent roughly $250 million on solar RD&D in that same time period.

Given the significant contributions that distributed wind can make to our rural economy and our clean-energy future; do you think that the Department ought to place more emphasis on this important renewable energy technology?

Answer. While the Department has recently increased its emphasis on less mature wind technologies such as those used in offshore applications, it should be noted that wind technology innovations and improvements supported by the DOE Wind Program are likely to benefit a variety of sizes and applications across the wind industry, and small- and medium-sized wind remain priorities for the Program. The Department plans to continue ongoing efforts to support small- and medium-sized wind, and has also identified several market barrier removal, deployment, and technology optimization activities as areas for investment to accelerate the deployment of wind technologies used in distributed applications and to increase the speed of technology transfer from low-wind speed utility-scale technology to distributed systems.

The recent growth and maturation of the U.S. small wind industry has seen a large number of new products enter the market without a framework for verifying manufacturer claims about turbine performance, reliability, noise, and safety. Product certification is essential for providing consumers, utilities, policy makers, and lenders with transparent, third-party-verified small wind turbine performance, durability and safety information, and DOE views certification as a way to provide manufacturers with the parameters for communicating transparent and credible information to stakeholders. To address these concerns, DOE supported the development of a technical standard that can now be used voluntarily to test small wind systems to performance and safety criteria. DOE has also supported the establishment of four small wind turbine regional test centers and the Small Wind Certification Council, which provides accredited third-party verification of test results in accordance with internationally adopted technical standards for testing. DOE plans to continue to support activities related to achieving its small wind technology goal, which is to increase the number of small wind turbine models certified to performance and safety standards from a 2010 baseline of 0 to 40 by 2020. The fiscal year 2012 milestone of five models certified has been achieved, and State renewable energy programs are establishing lists of qualified small wind turbines for incentive programs based on the process for certification developed with support from DOE.

The Department is also currently supporting research, analysis, and modeling to establish near-term cost of energy targets for midsize turbine technology and utility scale technology used in distributed applications, with the goal of being competitive with national average retail electricity rates. Work activities related to achieving this goal include economic analysis, next generation midsize turbine R&D, standards development, and technology transfer support. Future activities in support of this goal might include research to reduce the balance of station costs, studies of distribution grid integration, and the development and verification of site assessment tools.

Question. Will you agree to take a close look at DOE's wind power program very soon and assess steps to increase focus and support for distributed wind power?

Answer. The DOE Wind Program has identified several market barrier removal, deployment, and technology optimization activities (outlined below) as areas for in-

vestment to accelerate the deployment of wind technologies used in distributed applications and to increase the speed of technology transfer from low wind speed utility-scale technology to distributed systems.

Resource Characterization.—Research and develop predictive modeling/site assessment and resource characterization tools to reduce project performance uncertainty. Reducing uncertainty will improve access to lenders and help mitigate system underperformance. Distributed wind resource characterization work might include developing and verifying site analysis tools, developing best practices for cost-effective distributed wind resource characterization, and developing predictive economic modeling tools based on these site analyses and resource characterization tools using certified turbine models.

Grid Integration.—Research and assess distributed wind penetration on distribution grids. Increasing interconnection access to distribution grids operated by publicly owned utilities will increase installed capacity of distributed wind. Distribution grid integration work might include updating the distributed generation toolbox, reporting on how wind installations impact regional distribution grids, assessing the potential to penetrate distribution grids with distributed wind and other variable generation, and quantifying available capacity on the distribution grid.

Market Acceleration and Deployment.—Provide tools and unbiased information on distributed wind energy impacts, benefits, and project development processes to help stakeholders (homeowners, communities, utilities, and local/State governments) decide if wind energy is right for them, and to reduce upfront time and costs for those pursuing projects. Information provided would vary regionally based on that region's needs and might include:

—model zoning ordinances or permitting requirements;
—guidelines for navigating the permitting process;
—lists of certified turbines and installers;
—policy comparisons tools;
—reports on turbine noise, wildlife, or grid impacts;
—interconnection guidelines and tools;
—site analysis and resource characterization tools;
—turbine siting guidelines;
—case studies; and
—predictive economic modeling tools for project assessment.

Technology Performance Optimization.—R&D to improve small and midsize turbine performance, reliability, safety while reducing capital costs is critical for market growth. Small wind technology R&D activities might include a competitiveness improvement project with funding awarded for certification testing, noise-mitigating technology, component improvement and sub-system optimization, system performance optimization, and innovative manufacturing. Midsize wind technology R&D activities might include developing standards, establishing a certification framework, developing and testing prototypes, and testing for certification.

Question. Often times DOE is focused on large deployments or breakthroughs of significant scale, and less on deployment of small scale or distributed technologies. What are you doing to continue to focus on distributed energy and expanding deployment at the small scale?

Answer. While the Department has recently increased its emphasis on less mature wind technologies such as those used in offshore applications, it should be noted that wind technology innovations and improvements supported by the DOE Wind Program are likely to benefit a variety of sizes and applications across the wind industry, and distributed energy remains a priority for the Department.

The recent growth and maturation of the U.S. small wind industry has seen a large number of new products enter the market without a framework for verifying manufacturer claims about turbine performance, reliability, noise, and safety. Product certification is essential for providing consumers, utilities, policy makers, and lenders with transparent, third-party-verified small wind turbine performance, durability and safety information, and DOE views certification as a way to provide manufacturers with the parameters for communicating transparent and credible information to stakeholders. To address these concerns, DOE supported the development of a technical standard that can now be used voluntarily to test small wind systems to performance and safety criteria. DOE has also supported the establishment of four small wind turbine regional test centers and the Small Wind Certification Council, which provides accredited third-party verification of test results in accordance with internationally adopted technical standards for testing. DOE plans to continue to support activities related to achieving its small wind technology goal, which is to increase the number of small wind turbine models certified to perform-

ance and safety standards from a 2010 baseline of 0 to 40 by 2020. The fiscal year 2012 milestone of five models certified has been achieved, and State renewable energy programs are establishing lists of qualified small wind turbines for incentive programs based on the process for certification developed with support from DOE.

The Department is also currently supporting research, analysis, and modeling to establish near-term cost of energy targets for midsize turbine technology and utility scale technology used in distributed applications, with the goal of being competitive with national average retail electricity rates. Work activities related to achieving this goal include economic analysis, next generation midsize turbine R&D, standards development, and technology transfer support. Future activities in support of this goal might include research to reduce the balance of station costs, studies of distribution grid integration, and the development and verification of site assessment tools.

Question. Are you willing to commit to working with your sister agencies to identify opportunities to expand opportunities for distributed technologies?

Answer. The U.S. Department of Energy would be willing to work with other interested agencies to identify opportunities for distributed technologies, including Federal and State agencies.

COORDINATION WITH OTHER AGENCIES

Question. While DOE is certainly the premier Federal agency for energy research, development, demonstration, and deployment, many other agencies—the Department of Agriculture, the Department of Defense, the Environmental Protection Agency, and the Department of Interior—also have authority and resources to support energy development and deployment. Along those lines you've teamed up with the Department of Agriculture to work on the development of biofuels and you have an MOU with interior on retrofitting existing hydro assets. That's a good first step.

How are you coordinating with these agencies to expand information about your solicitations, projects, and commercialization opportunities, especially in rural America where they develop and harness this energy?

Answer. We have a number of formal and informal avenues for coordination with other Government agencies. For example, the Advanced Research Project Agency—Energy has partnered with the Department of Defense to develop innovative technologies for energy storage that can be used on ships as well as at naval installations. In addition, the Department, through the Office of Energy Efficiency and Renewable Energy, has been a co-lead with the Department of Agriculture on the inter-agency biofuels group that sets priorities for and oversees Federal investments biofuels development. There are many of examples of such collaboration. In both of these cases, we are working hand-in-hand on solicitations and commercialization opportunities, casting as broad a net as possible to harness the best ideas in science and technology. As we do so, companies, universities, and research institutions in rural America, who are often closest to these challenges, will be critical participants and we are actively working to include them in our efforts.

Question. How are you working to assure that rural businesses and researchers are participating and winning solicitations from DOE?

Answer. As you know, the Department of Energy, like other agencies, does significant work in rural America by virtue of the locations of its key facilities like National Renewable Energy Laboratory in Colorado and the Idaho National Laboratory in Idaho. Our laboratories become geographic centers for engineering, scientific, and economic activity as a matter of our ongoing operations. In addition, we reach out to local small businesses, community colleges, and other entities to help develop technical expertise and human capital to support not only the labs themselves, but also the new industries that the labs create.

PUMP STORAGE HYDRO AND POWER MARKETING ADMINISTRATION COORDINATION

Question. The Power Marketing Administrations and Tennessee Valley Authority (TVA) are all somewhat different animals, due to their enabling legislation. But, presumably, they and their Senate confirmed board members are all working together with you and the administration to further the goals of the President—energy efficiency, renewable and clean energy, a more reliable and smarter grid and so on.

How does all that work, because it's not obvious from out here that it's all hanging together with any specific goals in mind?

Answer. The Power Marketing Administrations (PMAs) are separate and distinct wholesale electric utilities within the Department of Energy. Each PMA is headed by an administrator who is a career employee of the Senior Executive Service. The administrator positions are not Senate confirmed. The PMAs do not have boards of

directors. Each of the PMAs has its own organic statutes governing its Federal power marketing mission in the regions that it serves. While the missions of the PMAs are similar, their statutory responsibilities vary. For example, while BPA has a statutory responsibility to promote energy efficiency in the Pacific Northwest, the other PMAs do not have a similar statutory responsibility. While the PMAs are operating utilities, they do coordinate with the Department of Energy and other administration officials on Federal energy policy as is appropriate and consistent with their governing Federal statutes.

The Tennessee Valley Authority, a corporation owned by the U.S. Government, provides electricity for 9 million people in parts of seven southeastern States at prices below the national average. TVA, which receives no taxpayer money and makes no profits, also provides flood control, navigation, and land management for the Tennessee River system and assists utilities and State and local governments with economic development.

TVA's Board of Directors are appointed by the President and are Senate confirmed. The Board guides TVA in achieving the objectives and missions established by the TVA Act for the benefit of the people of the Valley.

As provided by the TVA Act and the TVA Bylaws, the principal responsibilities of the Board are to establish the broad strategies, goals, and objectives, long-range plans and policies of TVA and to ensure that those are achieved by the TVA staff led by the Chief Executive Officer. Each Director takes an oath to faithfully and impartially perform the duties of office. Directors serve part-time.

The PMAs coordinate with TVA from time to time as they do with other electric utilities on energy policy and electric energy regulatory matters. The Bonneville Power Administration (BPA) and TVA also coordinate from time to time on Federal budget related matters and other Federal administrative issues related to self-financed entities.

Like other electric utilities, the PMAs strive continuously to operate reliable power and transmission systems. The PMAs routinely maintain their systems and invest in capital upgrades to maintain high reliability and efficiency. Their customer utilities understand the value of highly reliable power system and pay the costs of those investments either through rates or direct customer investments. These investments also are at no cost to taxpayers. My understanding of TVA is that their operations and maintenance approach is similar.

Question. Specifically you released a proposal last year to promote development of Pump Storage Hydro, while at the same time one of the PMAs was turning away companies interested in working with the Agency to develop permitted projects in their service territory. This project is located in a county with higher than the State average of unemployment and a construction project of this size would bring significant benefit to the BPA system and to the community.

Again just 2 weeks ago when you testified in front of the Senate Energy and Natural Resources Committee you are pushing BPA to do more pump storage hydro.

Does this mean you'll reconsider the permitted project awaiting investment which was push aside last year by BPA in Montana?

Answer. BPA's primary statutory mission is to market and transmit electric power to serve the load requirements of its preference customers. BPA also is an open access transmission provider. BPA's only authority to acquire the output of generating resources is for those customers' load service needs. To my knowledge, the only pumped storage project BPA has investigated to date is a rehab of the existing John Keys III Pumping Project. BPA has not received any formal request to partner with any private developer of pumped storage projects, and consequently, has not turned down a pumped storage project development.

RENEWABLE ENERGY STANDARD

Question. Secretary Chu, there are a lot of proposals out there to increase the market share of Renewable Energy Standard (RES). For example, I carried and passed Montana's Renewable Portfolio Standard (RPS) while in the State Senate. That effort brought more than $1 billion of investment to Montana to develop renewable energy. There are economic, social, and environmental benefits to this kind of investment, but RPS or RES isn't the only option.

Other members are promoting a Clean Energy Standard which requires that 80 percent of domestic energy come from clean sources by 2035. Still experts extol the benefits that tax credits and loan guarantee programs to expanding development. A recent Congressional Budget Office (CBO) report stated that imposing a carbon tax would be the strongest market signal.

With all these proposals on the table, what do you believe is the best option to help strengthen the deployment of Renewable Energy?

Answer. Many of the policy mechanisms mentioned represent viable approaches to strengthen the deployment of renewable energy and have been tested in various situations in the United States and around the world. With the support of current State and Federal policies (such as Montana's renewable portfolio standard), the President's goal of doubling renewable electricity generation was met in January of this year.[1] In addition, the President has proposed a Clean Energy Standard to meet the goal of doubling the share of clean electricity including renewables by 2035.

One important factor in selecting policy mechanisms to advance the deployment of renewable energy is to provide long-term market certainty. Providing market certainty will also allow a strong and viable renewable energy industry to grow in the United States, with the potential to export into the growing global renewable energy market.

In keeping with the President's "all of the above" energy strategy, a portfolio of policies may be an effective approach to strengthen the deployment of renewable energy.

QUESTIONS SUBMITTED BY SENATOR RICHARD J. DURBIN

FERMILAB AND HIGH ENERGY PHYSICS

Question. Prior to the shutdown of the historic Tevatron facility last year, scientists at Fermi National Laboratory may have detected the Higgs Boson particle, a long-sought-after particle that is critical to explaining the fundamentals of our universe. The lab is now focused on probing new scientific frontiers with the Long Baseline Neutrino Experiment (LBNE).

Despite this landmark discovery and other promising results, funding for Fermilab was cut $30 million (an 8-percent cut). This cut would result in 140 layoffs. This is in addition to the 90 layoffs that occurred this year due to previous budget cuts. These decisions only further encourage our best scientists and research facilities to leave the United States for European facilities, crippling our future in particle physics.

Given this, what is the Department of Energy (DOE) prepared to do to ensure a robust future for U.S. leadership in high-energy physics and discovery science research?

Answer. The Office of High Energy Physics (HEP) believes the P5 framework of three frontiers of particle physics represents a compelling vision for U.S. particle physics. The U.S. will participate in the Large Hadron Collider (LHC) program at CERN for the Energy Frontier. HEP will support research on dark energy and dark matter on the cosmic frontier and HEP plans to center a world-class Intensity Frontier program at Fermilab. The Intensity Frontier program will utilize the Fermilab accelerator complex to produce neutrino, muon, and kaon beams for studies of neutrino oscillations, Charge Parity (CP) violation, and provide rare decays that test fundamental symmetries of nature. This program can start with the current complex at Fermi, but the complex would need to be upgraded in the future.

LBNE has been part of the roadmap for the particle physics field for the last 4 years.

Question. After extensive review, the National Academies of Science and National Research Council urged the U.S. to have a domestic underground research facility. What is the Administration's plan for the Long Baseline Neutrino Experiment?

Answer. LBNE has been a key part of the HEP strategy since the 2008 High Energy Physics Advisory Panel report, "US Particle Physics: Scientific Opportunities A Strategic Plan for the Next Ten Years." Since 2010, when the National Science Board withdrew National Science Foundation (NSF) support for Deep Underground Science and Engineering Laboratory (DUSEL), HEP has been seeking a cost-effective solution to pursuing the physics discoveries that could be produced by the LBNE. The most recent conceptual design presented to the Office of Science in January was deemed to take too long to build and had unsupportable peak costs. The Office of Science has charged Fermilab to develop phased alternatives to deliver science sooner with lower-peak costs. Fermilab's response will be submitted to the Office of Science by July 1, 2012.

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[1] Goal is relative to end of 2008. 143,425 GWh in the 12-month period ending in January 2012 compared to 71,067 for the 12-month period ending in December 2008. Data from Energy Information Administration (EIA) annual energy review early release: http://www.eia.gov/electricity/data/eia860/index.html.

ARGONNE AND SUPERCOMPUTING

Question. High-performance computing is a key capability of America's national laboratories. The Leadership Computing Facility at Argonne National Laboratory houses one of the world's fastest supercomputers and provides world-class computational capabilities. This enables breakthrough scientific research in fuel efficiencies, aerodynamics, drug discovery, nuclear energy, and climate change.

Funding for the Leadership Computing Facilities, like the one at Argonne, are critical for continuing our path towards exascale computers, which would be 1,000 times more powerful than today's best computers. In the past 2 years we have seen significant investments by China, Japan, and the European Union in their computing capabilities.

Can you describe how the DOE will invest to regain and maintain U.S. leadership in supercomputing in the future?

Answer. To address critical missions in Science, Energy and National Security, the Department of Energy (DOE) in its 2011 Strategic Plan has set a goal to maintain "leadership in computational sciences and high-performance computing." The targeted outcome is to continue to develop and deploy high-performance computing hardware and software systems through exascale platforms. To accomplish this ambitious goal, DOE will draw upon proven successful programmatic and technical strategies that have established the Department as the premier leader in innovative high-performance computing systems over the past half-century. These strategies consist of three thrusts:

—research, development, and engineering (RD&E) to ensure timely availability of hardware, software, and mathematical technologies including improved cybersecurity;

—more reliable science and engineering simulations that will ensure U.S. economic competitive leadership; and

—acquisition, deployment, and operation of the most capable computing systems on a predictable cadence and budget.

Some of the exascale relevant research was anticipated by DOE and has been underway for a few years. These investments include core computer research efforts, uncertainty quantification research and the start of three co-design centers to ensure scientific computing challenges are informing architecture designs while critical DOE applications also stay informed with regard to hardware developments. These long lead-time efforts have hinted at some options and tradeoffs, but much work remains to be done. Advanced Scientific Computing Research (ASCR) supports several significant steps toward exascale in fiscal year 2012, including the start of investments in critical technologies and the installation of our first hybrid computing system at the Oak Ridge Leadership Computing Facility and the Blue Gene Q at Argonne National Laboratory. These computers will be critical for our researchers working on exascale technologies. In fiscal year 2013, we will complete upgrades to both of the Leadership Computing Facilities to take each facility to at least 10 petaflops. Both machines will provide new capabilities to the research community, including industry, to deliver new science and engineering insights. Upgrading the Leadership Computing Facilities will enable DOE to continue to lead in a number of areas of science and engineering, including materials, chemistry, earth science, nuclear physics, and engineering.

FUTUREGEN 2.0

Question. With coal providing 50 percent of U.S. electricity generation and close to 80 percent of the electricity in China, it seems to me that we can't fight climate change without cutting greenhouse gas emissions from coal.

As you are aware, DOE selected Morgan County, Illinois, to site the FutureGen 2.0 project. The project's goal is to develop a near-zero emission coal-fired power plant—reducing greenhouse gas emissions and generating tremendous economic opportunity at the same time.

How is FutureGen 2.0 progressing and how does it fit into the larger strategy of the DOE's Office of Fossil Energy?

Answer. The FutureGen 2.0 project consists of two cooperative agreements:

—repowering an existing electric generating unit in Meredosia, Illinois, owned by Ameren Energy Resources (Ameren) with a purpose-built oxy-combustion and carbon capture technologies; and

—constructing a pipeline and injection system that would sequester the carbon dioxide captured from the unit in a deep geologic formation beneath Morgan County, Illinois.

The second project is managed by the FutureGen Alliance (Alliance); the first project is currently managed by Ameren, but it has decided not to pursue its project beyond Phase 1 (preliminary design).

Phase 1 of both cooperative agreements is almost complete. The analyses undertaken during this phase resulted in an increased estimate of total program cost from $1.3 to $1.65 billion. This increase is attributable to identification of an additional $365 million in costs for Ameren's project scope. DOE understands that Ameren's decision not to proceed beyond Phase 1 was based in part on these cost increases.

The Alliance informed DOE that it intends to ask the Department to transfer the Ameren cooperative agreement to the Alliance and to authorize the Alliance to take both cooperative agreements into Phase 2. DOE's decision on these requests depends on the Alliance's ability to demonstrate that it has the technical, managerial, financial, and other capabilities needed to pursue all requirements of both cooperative agreements. The Alliance's demonstration will be contained in "decision point applications" that it intends to submit to DOE in June 2012.

FutureGen 2.0 is an important part of the Office of Fossil Energy's research and development program aimed at enabling more efficient capture processes and ultimately bringing down the cost of carbon capture, utilization, and storage (CCUS). The cost of CCUS and coal-fired electricity is ultimately a function of significant market factors, well outside the control of the Department. However, the Department does conduct research and development on advanced clean coal technologies that will bring costs down over time. As part of this effort, the Department conducts large scale research and demonstration projects, such as the FutureGen project, that allow first-of-a-kind clean coal technologies to be utilized on a commercial scale. These activities have been shown to reduce costs over the long run, and allow for more efficient, cleaner, and more affordable technologies to be used in the marketplace.

QUESTIONS SUBMITTED BY SENATOR LAMAR ALEXANDER

HUB QUESTIONS

Question. The President's budget request includes $19.4 million for a new Electricity Systems Hub and there are plans for 3 additional Hubs to begin in future years. Based on budget constraints, do you still believe it makes sense to grow the hubs to a total of 9 over the next couple of years?

Answer. The current Hubs have helped demonstrate the value of integrating the work of multiple researchers across various disciplines in tackling significant grand challenge problems. The Hub approach ensures that research efforts are coordinated at the most direct possible level, by ensuring that the relevant researchers are directly collaborating on a single, coherent team.

Question. Do you believe the hub concept has been successful?

Answer. The three existing Hubs have made robust progress in creating a critical mass of multidisciplinary research in their respective areas, enabling new approaches to challenging, high-priority technical barriers. In accordance with language in House Report 112–331 to H.R. 2055 (the Consolidated Appropriations Act of 2012), the Department of Energy (DOE) will soon be providing a report to the Congress detailing milestones and performance goals for the Hubs.

Question. Where will the funds come from assuming a flat-lined budget?

Answer. The Department's mission of addressing America's energy challenges through transformative science and technology solutions requires careful analysis and deliberation to develop a balanced portfolio of basic science and research, development, demonstration, and deployment. To ensure the right funding profile, DOE uses strategic analysis to identify and prioritize the most appropriate portfolio, as identified in the fiscal year 2013 budget request.

Question. Do you have plans for additional Hubs beyond the 9 that have been proposed?

Answer. In general, the Hub model is appropriate for addressing focus areas where:

—the problem represents a significant grand challenge, where major advances would be likely to have a material impact on energy production or consumption and on reducing greenhouse gases; and

—a coordinated, large-scale, multidisciplinary, systems-level approach is needed to accelerate the pace of innovation.

To determine which problems meet both these criteria and would thus be appropriate for the focus of a Hub, DOE draws on extensive technical and strategic dis-

cussions with industry, academia, other Federal agencies, and the technical expertise within the National Laboratories.

Question. How did you (DOE) decide the Electricity Grid hub was the most important hub to start next year, rather than solar, carbon sequestration, or extreme materials?

Answer. The Congress provided funding for a Critical Materials Hub in fiscal year 2012, and a funding opportunity announcement was released in May 2012. The goal of the Critical Materials Hub will be to reduce U.S. dependence on critical materials and ensure that the deployment of domestic energy technologies is not hindered by future materials supply shortages.

Solar and carbon capture use and storage (CCS) continue to be high priorities at DOE, as indicated by the Sunshot Initiative and the continued commitment to the deployment of 5–10 large scale CCS demonstration projects by 2016.

NUCLEAR WASTE QUESTIONS

Question. Can you describe what the Department is doing to address the waste problem, and how it complements the Blue Ribbon Commission's recommendations?

Answer. If we are going to ensure that the United States remains at the forefront of nuclear safety and security, nonproliferation, and nuclear energy technology, we must develop an effective strategy and workable plan for the safe and secure management and disposal of used nuclear fuel and nuclear waste. That is why I asked General Brent Scowcroft and Representative Lee Hamilton to draw on their decades of public service and expertise to lead the distinguished Blue Ribbon Commission (Commission) to conduct a comprehensive review of policies for managing the back end of the nuclear fuel cycle.

The Commission's recommendations outline a sensible and practical approach to solving the challenges associated with the management and disposition of commercial and defense nuclear materials. The consensus report they produced is a critical step toward finding a sustainable approach to disposing used nuclear fuel and nuclear waste. The Commission made it clear that, in its judgment, any workable and lasting solution for the final disposition of used fuel and defense high-level nuclear materials must secure and sustain the consent of the communities, States, and/or tribal nation governing officials and the public they represent.

Following the completion of the Commission's report, I asked the Assistant Secretary of Nuclear Energy to lead a departmental review of its recommendations and develop a strategy that builds on the Commission's excellent work. Those efforts are well underway. A strategy and action plan that accounts for the Commission's recommendations will be conveyed to the Congress by the end of July of this year.

Finally, the President's fiscal year 2013 budget calls for a $60 million program to support used nuclear fuel disposition. This program will build on the fiscal year 2012 $60 million efforts and both are in alignment with the near-term activities recommended by the Commission during the interim period leading to a renewed national policy and strategy.

Question. Are all of these activities consistent with your authority in the Nuclear Waste Policy Act?

Answer. Yes, these activities being conducted and proposed for nuclear fuel disposition in fiscal year 2012 and 2013 are consistent with my authority under the Nuclear Waste Policy Act.

NUCLEAR ENERGY AND SMALL MODULAR REACTORS QUESTIONS

Question. Is $65 million of small modular reactors (SMR) licensing support enough to continue on the 5-year schedule with two reactors, or will the schedule slip or are you now only allowing for one reactor design?

Answer. Yes, the Department believes that $65 million is an adequate budget for fiscal year 2013, and does not expect the schedule to slip for two reactor projects based on this amount. Because the program was not authorized to start until the end of calendar year 2011, and is currently executing a complex and lengthy financial assistance process, the Office of Nuclear Energy (NE) anticipates having to carry over most of the fiscal year 2012 funding into fiscal year 2013. At that point, approximately $130 million will be available to invest in SMR certification and licensing efforts through fiscal year 2013. NE believes that this budget can sustain the program through fiscal year 2013, but we will need to increase the budget requests in the outyears in order to meet the program goals of accelerating the completion of the certification and licensing for the awarded projects. If additional funding were to be provided in the fiscal year 2013 budget, there may be opportunities to accelerate the SMR licensing schedules.

Question. Why isn't SMR licensing support just another subsidy, and how you plan to leverage the financial resources from private industries?

Answer. The partnerships with industry will be executed as financial assistance cooperative agreements that will require our selected awardees to contribute 50 percent of the costs involved in the design, engineering, and licensing efforts conducted under the project scope. The Government contribution is expected to help our industry partners accelerate their timelines toward licensing and deployment of these SMR reactors. This cost-shared funding arrangement ensures that industry is fully sharing the investment risk, and the Department will track the projects closely to ensure that our partners are executing the work scope and meeting the milestones outlined in the cooperative agreements. If the Department finds evidence that the partners are not meeting their project commitments, DOE has the option to discontinue funding under the agreement.

Question. Do you believe the United States will benefit from this SMR partnership not only domestically but also internationally?

Answer. Yes, DOE believes that the development of a domestic SMR industry can create an economic ripple-effect as SMR units are certified and licensed for deployment. Large-scale, fleet level deployment of SMRs can act as an engine for domestic economic growth. The development of SMRs may be critical as replacements for dozens of old coal plants that are expected to be decommissioned within the decade. The manufacturing, on-site fabrication, and operation of these SMRs can create thousands of mid- to long-term, high-paying jobs. All of the domestic SMR designs can be manufactured using existing U.S. infrastructure and capability, something that cannot be said of the large light water reactor (LWR) designs. The U.S. currently does not have the ability to fabricate the large reactor pressure vessel and some steam generator forgings. Growth of a domestic SMR technology and manufacturing capability may also create an opportunity to increase U.S. presence in the nuclear technology export market as U.S.-designed and built SMRs are sold overseas.

Question. Can you discuss what impact of the 50-percent cut to the advanced reactor concepts program would be, and how that could impact us in the international arena?

Answer. The Advanced Reactor Concepts R&D program remains an important program for the Department. Impacts to sodium-cooled fast reactor research and development will be minimized as much as possible given this concept's potential role in addressing fuel cycle issues, and in order to sustain collaborations conducted under international programs such as the Generation IV International Forum and various bilateral international agreements. Fuel development efforts that support sodium-cooled fast reactor technology also continue under the Fuel Cycle R&D budget. We consider it a priority to maintain these advanced reactor research international relationships so that we can leverage our efforts by sharing the research of our international partners. Reflecting difficult resource allocation choices, R&D activities associated with lead/lead-bismuth and fluoride high temperature reactors will be significantly reduced. The energy conversion R&D, which includes supercritical CO_2 turbomachinery and related heat exchangers, will be consolidated under the Small Modular Reactor Advanced Concepts R&D Program in fiscal year 2013.

OFFICE OF SCIENCE QUESTIONS

Question. Why should we continue to fund International Thermonuclear Experimental Reactor (ITER) if we can't afford it?

Answer. We entered the ITER project to take the next step toward development of a practical and virtually inexhaustible energy source. We understood that no one nation had the financial, technical, and scientific resources to build this project on its own. The only practical solution was to negotiate and implement an international cooperative approach for fusion, which is the ITER Project. The conditions that convinced us to join ITER are still valid today.

The United States has worked with the other country members and with the ITER Organization to maintain schedule and cost of the ITER Project. DOE has faced and overcome some challenges with ITER, and we are confident that the project has the management team in place to carry us efficiently through construction. The key to keeping ITER affordable is proper management that helps us achieve cost control and keep to the schedule. DOE will continue to maintain a close watch on the project, both at the ITER Organization and domestically, to ensure that we get the maximum value for the taxpayer's money, while working to achieve our goal of practical fusion energy.

Question. In a time of limited resources and the knowledge that our budgets won't realistically grow much over the next few years, why are you proposing such a big

new project in Facility for Rare Isotope Beams (FRIB) for something that is such a low priority?

Answer. FRIB was identified as the highest priority for new construction in the 2007 Nuclear Science Advisory Committee Long Range Plan and is also one of two targeted outcomes in the DOE 2011 Strategic Plan. The DOE strategic outcome is to "Complete construction of nuclear physics facilities by the end of the decade at Jefferson Laboratory and Michigan State University to test quantum chromodynamics, the theory of nuclear forces, and produce exotic nuclei of relevance in astrophysical processes."

A total of $51 million has been appropriated for the design and construction of FRIB from fiscal years 2009 through fiscal year 2012. FRIB will provide an important new capability for nuclear physics research in the United States. FRIB will provide intense beams of rare isotopes, i.e., short-lived nuclei not normally found on Earth. This will enable scientists to make discoveries about the properties of these rare isotopes in order to better understand the physics of nuclei, nuclear astrophysics, fundamental interactions, and applications for the United States. FRIB will increase the number of isotopes with known properties from about 2,000 observed over the last century to about 5,000 and will provide world-leading research capabilities. The fields of nuclear structure and astrophysics will be studied at FRIB to provide the link between our understanding of the fundamental constituents of nature and the understanding of the matter of which we, the Earth, and stars are made. FRIB is essential for maintaining a U.S. core competency in nuclear structure and astrophysics, which is at the heart of the national nuclear physics program. Expertise in these areas is also central to applied fields such as energy, security, and medicine.

STREAMLINING AND REDUCING COSTS QUESTIONS

Question. Is there a better way to centralize the way the individual labs buy goods and services that would better leverage DOE's buying power?

Answer. The Office of Management and Budget (OMB) by memorandum dated May 20, 2005, mandated the use of strategic sourcing on a Federal Governmentwide basis. This directive required all Federal Government agencies to implement the concepts of strategic sourcing; "a collaborative and structured process of critically analyzing an organization's spending and using this information to make business decisions about acquiring commodities and services more effectively and efficiently, to the maximum extent practicable."

In 1997, prior to issuance of the aforementioned OMB guidance, DOE recognized a majority of its procurement dollars flowed through its laboratory contracts and subsequently through subcontracts. To better leverage DOE's buying power, the Department established the Integrated Contractor Purchasing Team (ICPT), comprised of DOE management and operating contractors collaborating to produce acquisition ordering instruments for common products and services used across DOE. This complex-wide, contractor-led strategic sourcing program has achieved tens of millions of dollars in savings over the years. DOE has continued to emphasize use of the established ICPT commodity agreements, which contain pre-established favorable pricing, and are available for all DOE sites to purchase commercially available supplies. The National Nuclear Security Administration (NNSA) also determined it needed an enterprise-wide organization to address the needs of its unique supply chain. Consequently, in 2006 it established a contractor-led, strategic sourcing organization called the Supply Chain Management Center (SCMC). The SCMC's mission is to implement the NNSA strategic sourcing strategy of operating as an integrated nuclear complex. The SCMC has improved efficiencies and economies across the complex and is saving considerable amounts of money through the use of commercial best practices, shared software solutions, and leveraging NNSA's purchasing power.

In 2010, Deputy Secretary Poneman issued a memorandum to all Heads of Departmental Elements, directing them to adopt a corporate approach to purchasing that necessitates close collaboration between the DOE programs and the contractor community. It noted the successful implementation of NNSA's Supply Chain Management strategies and discussed the potential benefits of expanding the initiative across the Department. Coordinating commodity management across the complex would help to achieve better pricing from suppliers, ensuring uniform prices for comparable goods and services, and streamlining and reducing the total cost of acquisition. The structured process of analyzing spending patterns across the entire department and utilizing this information to acquire commodities and services more efficiently could ultimately result in even greater cost savings.

In 2012, the Office of Environmental Management (EM) determined it would be advantageous to utilize the SCMC to integrate its supply chain to achieve similar

results. Although early in the implementation process, success is already being realized at EM sites. EM also avoided duplication of costs by utilizing the existing SCMC capabilities and infrastructure rather than developing and deploying a separate comparable program.

Question. You have had success using the Supply Chain Management Center for NNSA, why can't this model be applied to all the national labs?

Answer. Office of Management and Budget (OMB) memorandum dated July 29, 2009, mandated that Federal agencies improve Government acquisition by developing more strategic acquisition approaches to leverage buying power and achieve best value for the taxpayer. Specifically, it directed agencies to; "increase their participation in government-wide strategic acquisition initiatives, including strategic sourcing initiatives that reduce costs for all agencies by leveraging the Government's buying power and, where appropriate, expand their use of enterprise-wide strategic acquisition initiatives that offer significant savings opportunities from both business process improvements and access to lower product and service costs."

DOE might improve upon its success by applying the SCMC model to the remaining national labs, but it is not known to what extent it is feasible to do so. As discussed in the response to question 28–2, EM has determined it would be advantageous to utilize the SCMC to integrate its supply chain in an attempt to achieve similar results. Although early in the implementation process, success is already being realized at EM sites. The Office of Science (SC) has made a determination that its labs already have a sufficient Strategic Sourcing Program in place and it would not be cost effective to implement the SCMC model at its sites. In a study completed by the Office of Science, it determined that; "given the evolved state of supply chain activities at many SC labs, combined with available commercial resources, a parallel structure tuned to the differing SC mission is a better alternative than wholesale participation in SCMC." The report concludes that through the strategic efforts of its labs, "SC successfully generates equal or better savings on commodities, as compared to the SCMC eStore." It also concludes that the "SC labs obtain competitive and negotiated cost savings on par with the results of the SCMC eSourcing tools," although they concede "they may benefit from selected use of a reverse auction tool." Essentially, SC has determined that by utilizing the existing Integrated Contractor Purchasing Team (ICPT) commodity agreements and the labs' own internal site specific sourcing capabilities, it is as effective as the SCMC at leveraging the SC buying power and ultimately generating sufficient cost savings.

Coordinating commodity management across the complex would help to achieve better pricing from suppliers, ensuring uniform prices for comparable goods and services, and streamlining and reducing the total cost of acquisition. The current process includes cross-representation between the ICPT and the SCMC to ensure an enterprise look at spend data. The structured process of analyzing spending patterns across the entire department and utilizing this information to acquire commodities and services more efficiently could ultimately result in even greater cost savings.

QUESTION SUBMITTED BY SENATOR THAD COCHRAN

Question. The Department is targeting a significant amount for investment into high-risk, high-reward renewable energy alternatives, perhaps at the expense of research at the national labs and in partnership with institutions of higher education. In the biofuels arena, many of these technologies require significant developments and investment in feedstock supply infrastructure. Mississippi, for example, has a surplus of southern yellow pine that remains readily available and proven commercial viability.

Might it be more prudent to invest in alternatives that have the necessary components for economic viability in the near-term while using the research sector and National Lab system to further refine and advance technologies until they are much closer to commercialization?

Answer. The Department of Energy invests in research, development, and deployment across a wide variety of technologies at many stages of development. The Office of Science is the lead Federal entity supporting fundamental scientific research for energy and the Nation's largest supporter of basic research in the physical sciences. Advanced Research Projects Agency-Energy (ARPA–E) focuses exclusively on high-risk, high-payoff concepts, filling a former gap in the Department's portfolio. For applied energy technologies, the Office of Fossil Energy, Office of Nuclear Energy, Office of Energy Efficiency and Renewable Energy, and the Office of Electricity Delivery and Energy Reliability carry out targeted, use-inspired research and development, as well as a variety of deployment projects for energy sources that have

strong potential for economic viability in the near-term. In each case, the blend of activities is selected through careful program management and regularly re-evaluated for effectiveness. These programs also work with a variety of university, National Lab, and private company partners based on the maturity and characteristics of the technology or system.

Biomass resources are available in every county in the United States, making them one of the most universal opportunities. However, as with the yellow pine in Mississippi, many specific geographic and technical issues need to be explored for different location. The Office of Biomass Program works on feedstock logistics issues in partnership with local universities and companies. Some example projects are described in this fact sheet: http://www1.eere.energy.gov/biomass/pdfs/feedstocks__four__pager.pdf.

QUESTION SUBMITTED BY SENATOR SUSAN COLLINS

Question. Secretary Chu, my support for New Strategic Arms Reduction Treaty (New START) was influenced in part by the administration's commitment to modernize the U.S. nuclear weapons complex. During Senate consideration of the treaty in November 2010, the President announced his commitment to increase funding for nuclear modernization activities by $4.1 billion during the next 5 years.

However, the budget request for fiscal year 2013 for Weapons Activities is $372 million less than was projected in the President's Section 1251 Plan as delivered in November 2010. If we fund Nuclear Weapons Activities at the amounts proposed in the President's budget request for the next 5 years, the total investment to the nuclear complex will be $4.3 billion less than the President committed to Senators during the debate on New START. This is where we were before New START.

As you can imagine, this change of course in the investment in the safety, security, and reliability of our nuclear stockpile raises doubts and concerns about the administration's commitments.

Secretary Chu, how would you respond to the concern many of us have on this issue?

Answer. The administration, including the Department of Energy (DOE)/National Nuclear Security Administration (NNSA) leadership, remains committed to programs and capabilities outlined in the 1251 report and fiscal year 2012 Stockpile Stewardship and Management Plan.

If approved by the Congress, the President's budget for fiscal year 2013 will be the third consecutive increase in Weapons Activities, resulting in an 18.6 percent increase for Weapons Activities since the fiscal year 2010 budget. While this is less than projected in last year's budget submission and the 1251 report, the request reflects a new fiscal climate in Washington, embraced by both the Congress and the administration.

Last year, the Congress passed the Budget Control Act (BCA), which limits discretionary spending for the next decade, and caps national security spending in fiscal year 2012 and 2013. In fiscal year 2012, the Congress also reduced NNSA's request for Weapons Activities by $416 million below the President's request, or 5.4 percent.

NNSA must adjust to this new reality. But the agency and the administration remain committed to necessary investments in nuclear capabilities and the nuclear complex.

QUESTIONS SUBMITTED BY SENATOR LISA MURKOWSKI

Question. As you are aware, the authorization in Public Law 106–392 to use power revenues to fund the Upper Colorado Recovery Implementation Plan expired at the end of fiscal year 2011. Currently, the Congress is working on legislation to address the reauthorization of this Program. However, the administration's fiscal year 2013 budget addresses this funding, saying "In the absence of legislation to extend this specific authority, Reclamation may rely on existing authority to continue the use of Center for Revolutionary Solar Photoconversion (CRSP) hydropower revenues or use appropriated funds to ensure full base funding."

Is it the intent of the administration to continue to use power revenues without an authorization?

Answer. This question should be redirected to the Department of the Interior for a response. The referenced administration language comes from the U.S. Bureau of Reclamation's fiscal year 2013 budget submission and they would be the most appropriate agency to address questions related to that request.

Question. If so, please describe what "existing authority" is being referred to in your budget request.

Answer. This question should be redirected to the Department of the Interior for a response. The referenced administration language comes from the U.S. Bureau of Reclamation's fiscal year 2013 budget submission and they would be the most appropriate agency to address questions related to that request.

SUBCOMMITTEE RECESS

Senator FEINSTEIN. Thank you very much, Mr. Secretary.

The hearing is adjourned.

[Whereupon, at 4:26 p.m., Wednesday, March 14, the subcommittee was recessed, to reconvene subject to the call of the Chair.]

ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR FISCAL YEAR 2013

WEDNESDAY, MARCH 21, 2012

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, DC.

The subcommittee met at 2:32 p.m., in room SD–192, Dirksen Senate Office Building, Hon. Dianne Feinstein (chairman) presiding.

Present: Senators Feinstein and Alexander.

DEPARTMENT OF ENERGY

NATIONAL NUCLEAR SECURITY ADMINISTRATION

STATEMENT OF THOMAS P. D'AGOSTINO, ADMINISTRATOR

OPENING STATEMENT OF SENATOR DIANNE FEINSTEIN

Senator FEINSTEIN. Good afternoon, ladies and gentlemen, and welcome to the Energy and Water Subcommittee's hearing on the National Nuclear Security Administration's (NNSA) fiscal year 2013 budget request.

NNSA has requested $11.536 billion for fiscal year 2013. Now, that's an increase of $536 million, or 5 percent from fiscal year 2012 levels.

If the budget request were enacted, NNSA would see an increase of $1.7 billion, or 17 percent in just 3 years. This increase is particularly noteworthy because the rest of the Department of Energy (DOE) would be down $1.5 billion, or 9 percent, compared to fiscal year 2010, and NNSA is making up a larger share of total spending. It's 42 percent of total spending for this portfolio in 2013 compared to 36 percent in fiscal year 2010.

Regarding nuclear weapons activities, I believe the fiscal year 2013 budget request provides more than sufficient funding to modernize the nuclear weapons stockpile. Some of my Senate and House colleagues have raised concerns that the budget request falls short and more funding is needed. I do not agree.

However, I would like to highlight management issues that raise serious concerns about NNSA's ability to contain costs and effectively spend taxpayer dollars at the request level, let alone at higher levels.

First, NNSA's projects are over-budget. The most recent examples of significant cost increases and schedule slips include the cost of a new uranium facility at Y–12 in Tennessee, known as the Ura-

nium Processing Facility (UPF). This has grown from $600 million to $6 billion. It is 10 times more expensive than originally projected.

The B61 life extension program is expected to be $1 billion to $2 billion more than originally projected, and 2 years behind schedule.

The cost of a new plutonium facility at Los Alamos, which has now been delayed, grew from $660 million to $5 billion, six times more expensive than originally projected, and is facing a 7-year delay.

Finally, the cost of a new facility to downblend pit plutonium into commercial nuclear fuel at Savannah River in South Carolina grew from $1.4 billion to $5 billion, four times more expensive than originally projected, and 14 years behind schedule. And the list goes on.

It is clear, to me at least, that NNSA does not have good cost-estimating practices, making it impossible to determine the actual cost of a project, and whether the benefit outweighs the costs. The solution for these cost increases cannot be solely providing more and more funding.

Second, when NNSA completes a project, it reduces the scope of its work and delivers less than promised. For example, NNSA claimed when it completed life-extension activities for the W87, and a major component of the B61 bomb, on time and on budget, but only because it refurbished hundreds of weapons less than originally planned.

Even more worrying is that as costs go up, NNSA is reducing the capabilities of new facilities, and not properly communicating the changes to the Congress.

A Government Accountability Office (GAO) report that will be issued on Monday, which I requested, found that the cost of building a new plutonium facility as Los Alamos would cost six times more than projected. However, NNSA would have eliminated certain critical capabilities that were part of the original project scope to avoid even more cost increases.

For example, the facility would not have been able to accommodate other plutonium-related missions for homeland security and nuclear nonproliferation. The result may have been requests for even more funding at a later date to build more facilities, to house capabilities that should have been included in the plutonium facility.

Third, NNSA has failed to assess alternatives before embarking on multi-billion dollar projects. I know this is harsh, but if you can prove what's being said is not correct, I would like to hear it.

NNSA has just terminated or delayed two major construction projects after spending $1.5 billion only to conclude that it could use existing facilities to meet mission requirements. Those funds could have been better spent on other nuclear weapons and nonproliferation activities, and it raises questions about the return on the taxpayers' investment.

At a time of fiscal constraint, NNSA must be more cost-conscious and do a better job developing realistic and credible cost estimates for major projects, or else cost overruns and schedule delays will undermine the nuclear modernization agenda and nonproliferation goals.

While the nuclear weapons program receives a significant budget increase, I am concerned about potential funding shortfalls for nonproliferation activities, which address the highest risk to the United States, nuclear terrorism.

Just yesterday, NNSA announced that it removed all weapons useable nuclear material from Mexico, the seventh country in only 3 years to achieve that milestone. This is an example of why we need to maintain momentum in removing dangerous materials.

I'm concerned about unanticipated delays in implementing nonproliferation activities that detect nuclear smuggling and secure vulnerable nuclear materials. Efforts to install detection equipment at strategic international borders and shipping ports to prevent nuclear and radiological smuggling have had their budgets cut by $171 million. The plan up to a few months ago was to accelerate efforts to deploy detection equipment at 650 sites in 30 countries and 100 international seaports by the end of 2018. NNSA has now decided to take a strategic pause and delay activities to deploy this equipment. NNSA must explain this change of implementation, especially when nuclear trafficking remains a serious concern.

According to the International Atomic Energy Agency, there were 147 incidents of nuclear smuggling in 2011. Four incidents involved significant quantities of highly enriched uranium, one of the main ingredients for a nuclear weapon. One of these incidents was related to an attempted sale of this material.

I'm equally concerned about delays in converting or shutting down reactors around the world that use highly enriched uranium. Up to a few months ago, the original plan was to accelerate these conversions and shut down or convert 200 research reactors by 2022. The goal has now been delayed by 3 years to 2025.

This delay is troubling because these research reactors are not well protected. The only way to reduce the risk of nuclear threat at these facilities to zero is to make sure there is no usable weapons material left there to steal. This requires shutting down or converting these reactors as quickly as possible so that we can remove the material permanently.

Finally, I am worried that delays in implementing these nonproliferation programs will lead to further delays as budgets are more restrained. While modernizing the nuclear weapons stockpile is important, it cannot come at the expense of nonproliferation activities.

Joining us today to explore these important national security issues is Tom D'Agostino, the administrator of the NNSA. Before calling on Mr. D'Agostino, I would like to recognize my wonderful friend and colleague with whom, over many years, it's been such a great pleasure to work, Senator Alexander, for any remarks he would care to make.

STATEMENT OF SENATOR LAMAR ALEXANDER

Senator ALEXANDER. Thank you, Madam Chairman, Mr. D'Agostino. I want to thank the Chairman. It's a joy to work with her. We actually work on getting results, and we work together, and we explore our differences of opinion. I have a good friend who said we had a good 35-year partnership, and he said it was due to

the fact that we had many differences of opinion, but never a disagreement. So that's not a bad way to work.

I want to pick up on what Senator Feinstein said about cost overruns in big projects. And, Mr. Administrator, you and I have talked about this before. When you've been a Governor or maybe even a mayor, you have stories. And one of mine is that when I was running for Governor, we were about to have a World's Fair in Knoxville, and the Chamber of Commerce president was deeply concerned that the interstate road construction wouldn't get done in time for the World's Fair, and he wanted it to be my priority, if I were elected. I said, "Well, how would you do it if you were me?" And he said, "Well, I would find the very best person you could to put in charge of it, I would agree upon a plan, and then I'd meet with him once a month, and I'd ask him whether it was on time and on budget."

So after I was elected, I went back to the Chamber of Commerce head, and I invited him, and he agreed to be the head of the highway department. And he developed a plan, and we met once a month, and it got done.

And that sounds awfully simple, but it's the kind of accountability that, Mr. Administrator, you're accustomed to as a Navy man. I mean that's why our nuclear submarines have really never had a death in terms of the operation of the reactors there since the 1950s. And I'm sure it's because Admiral Rickover said the captain, the commander, has the full responsibility for this. And everybody knows that their career in the Navy depends upon the safe operation of the reactor and the proper operation of the reactor.

So Senator Feinstein went through several of these huge projects that we have, and no one doubts the complexity and difficulty of them, and they're very expensive, but she's right. I mean, we think about the uranium project at Y–12 in Oak Ridge, it seemed like every time I asked about it, it went up another $500 million in cost, literally.

And so, Madam Chairman, I'm thinking just for myself, and maybe this is something that you and I would want to do together, or maybe not, but the UPF under the Administration's proposals has now been moved front and center. And there's a proposal to make phase one of it, which will probably cost in the neighborhood of $5 billion, the front-and-center project. And it's supposed to be done by 2019, and we're supposed to know by the end of the year. I think 90 percent of the design should be done by then, and at that point, we should be able to fix a cost.

And it would seem to me that maybe one way to deal with this is, by the end of the year, fix the cost, if we agree with the phase one proposal, and if it's properly funded, and agree with the administrator on a timeline and a cost, and then I, for one, would like to meet with him, maybe once a quarter, for about an hour just for the purpose of asking the question, "Are you on time, and are you under-budget?"

Senator FEINSTEIN. That's a good idea.

Senator ALEXANDER. And just do that all the way through. And maybe that would be true with some of the other big projects, and see by focusing attention on them, we can help do that, because a United States Senator cannot, and I don't think should, try to man-

age anything of that complexity. But our responsibility in oversight is to try to protect the taxpayer dollars, and we have so many urgent needs within just this budget that if we can save money, we've got a place to put it or to reduce the debt, which we have in our country today.

For example, I'm concerned, the Senator mentioned the funding for nuclear modernization. It is true; we're $363 million above last year, a lot of money, based upon the President's recommendation. But we're $372 million below where we, just a couple of years ago, said we should be and where the Department of Defense (DOD) says we should be.

So I want to explore that in my question time as well. I'll wait for my question time to go into these issues. But my major concerns are, number one, these big projects and making sure that we have an agreed-upon cost, and agreed-upon timeline, and an accountability for whose job it is to see to it that it's done.

I want to know, if we're not going to go forward with the facility in New Mexico right now, who's going to do the work that needs to be done on plutonium, and how much is it going to cost?

I want to make sure that on the uranium facility at Oak Ridge, that as you go through a competition for management—and that's your prerogative to do that; it's a part of keeping everybody honest and making the taxpayer secure—but I want to make sure that all of the effort that surrounds a competition of such a major effort does not interfere with whatever we agree upon should be the timeline and the cost of what may be a—I don't want to say a number, because I hope it's lower than this—a $5 billion or so phase one of the UPF.

So those are important issues. I thank you for your service. And I look forward to your testimony and to have a chance to follow up with questions.

Senator FEINSTEIN. Thank you very much, Senator Alexander.

Mr. D'Agostino, you're on.

SUMMARY STATEMENT OF THOMAS P. D'AGOSTINO

Mr. D'AGOSTINO. Chairman Feinstein and Ranking Member Alexander, good afternoon and thank you for having me here today to discuss the President's fiscal year 2013 budget request. Your ongoing support for the men and women of the NNSA and the work they do, and your bipartisan leadership on some of the most challenging national security issues of our time, has kept American people safe, helped protect our allies, and enhanced global security.

Last month, President Obama released his budget for fiscal year 2013. Due in part to constraints established by the Budget Control Act, this is a time of fiscal austerity. We recognize that. I want to assure you that the NNSA is being thoughtful, pragmatic, and efficient on how we achieve the President's nuclear security objectives and shape the future of nuclear security.

We have continuously improved the way we operate, and we are committed to doing our part in this constrained budget environment.

In April 2009 in Prague the President shared his vision and the united approach for our shared nuclear security goals. The request

for NNSA is $11.5 billion, which is an increase of $536 million over the fiscal year 2012 appropriation.

This request reaffirms our commitment to building a 21st century nuclear security enterprise through innovative approaches to some of our greatest security challenges with key investments in our infrastructure.

We're continuing our critical work to maintain the stockpile and ensuring that as long as nuclear weapons exist, they remain safe, secure, and effective. And this budget request provides $7.58 billion for our weapons activities account to implement the President's strategy in coordination with our partners at the DOD.

The President continues to support our life extension programs, including funding for the B61 activities. He also requested increased funding for out stockpile systems for the W78 and 88 life-extension study, which I discussed with you last year.

Our request for investment in science, technology, and engineering that supports NNSA's mission will ensure that the national security laboratories continue to lead the world in advanced scientific capabilities. For over a decade, we've been building the tools and capabilities we need to take care of the stockpile. And in fact, not just take care of the stockpile, but support the whole range of nuclear security work.

We're now entering into a time when NNSA will fully utilize the analytical tools and capabilities towards the mission of maintaining a safe, secure, and effective stockpile, and perform the necessary life-extension work. These capabilities provide a critical base for our nuclear nonproliferation and counterterrorism work, allowing us to apply our investments to the full scope of our mission.

The President's budget also reflects his commitment to completing key dismantlements with $51.3 million requested in 2013 to continue to reduce the number of legacy of nuclear weapons retired from stockpile.

We've previously committed to completing the dismantlement of all warheads retired as of fiscal year 2009 by completing this work by fiscal year 2022.

Last year, NNSA completed the dismantlement of the last B53 nuclear bomb, one of the largest ever built, ahead of schedule and under budget. We also eliminated the last components of the W70 warhead, which was originally in the U.S. Army arsenal.

To support our stockpile and provide us with world-class capabilities, we need to modernize our cold war-era facilities and maintain the Nation's expertise in uranium processing and plutonium research.

This budget includes $2.24 billion to maintain our infrastructure and execute our construction projects.

As you know, our deterrent is only one part of the NNSA's mission. 2013 will see us continue to advance the President's 4-year goal to secure the most vulnerable nuclear material around the world. And the budget request provides $2.46 billion we need to continue critical nuclear nonproliferation efforts.

Our continued focus on innovative and ambitious nonproliferation and nuclear security is vital. The threat is not gone, and the consequences of nuclear terrorism and state proliferation would be devastating.

Detonation of a nuclear device anywhere in the world would lead to overwhelming economic, political, and psychological consequences. We must remain committed to reducing the risk of terrorism and state-sponsored or state-based proliferation.

Anne Harrington and I will be leaving for Seoul, South Korea, very soon, where the President and more than 50 world leaders will renew their commitment to nuclear security at the 2012 Nuclear Security Summit.

We know there's no silver-bullet solution, which is why we'll continue to implement a multilayered strategy to strengthen the security of nuclear material around the world by removing or eliminating it where we can; consolidating and securing the material, if elimination is not an option; reducing the civilian uses of highly enriched uranium, particularly for research in medical isotope production where low-enriched uranium options exist or can be developed; and maintaining our commitment to detecting and deterring nuclear smuggling.

NNSA has also helped American sailors reach destinations across the globe safely and reliably for decades through our Naval Reactors program. The $1.1 billion in the 2013 request will support the effort to complete the *Ohio*-class replacement submarine, and to modernize key elements of our infrastructure.

Support for the President's request is key in our ability to support the nuclear Navy. This budget request also gives us the resources we need to maintain our one-of-a-kind emergency response capabilities, which allow us to respond to a nuclear or radiological event anywhere in the world and anticipate the future of nuclear counterterrorism and counterproliferation.

I told you a lot about our plans and budgets, and I'd like you to know that we are committed to being responsible stewards of our taxpayer dollars. We've taken steps to ensure that we're building a capabilities-based infrastructure. We view this constrained budget environment as an additional incentive to ask ourselves how can we rethink the way we're operating, how can we further innovate and improve our business processes?

We're adjusting our plutonium strategy by deferring the construction of the chemistry and metallurgy research replacement facility, the nuclear portion, and focusing instead on how we can meet our plutonium needs on an interim basis by using the capabilities and expertise found at existing facilities.

Deferring this project will have an estimated cost avoidance of approximately $1.8 billion over the next 5 years, which will help offset the costs of other priorities, such as weapon life-extension programs and the nuclear security work that we have to do around the world.

We're not resting on old ideas to solve tomorrow's problems. We're shaping the future in a fiscally responsible way. Budget uncertainty adds costs and complexity on how we achieve our goals. You've been very supportive of our efforts in the past, and I ask again for your help in providing the stability we need to do our jobs effectively and efficiently.

I'm proud of the work that we do everywhere, that the men and women of the NNSA have done around the world. And we're defining ourselves, and we're continuing to push ourselves into an inte-

grated and interdependent enterprise, one that's not based on geography, but one that's based on capabilities that need to be maintained.

We're implementing new business processes by looking at International Standards Organization (ISO) 9001 standards, and looking to the future via a detailed workforce analysis to make sure we have the right people we need in the right jobs, particularly in the project management area, which is so important.

And finally, we've created an acquisition and project management organization to help institutionalize our commitment to improving the way we do business, to integrate project management and the acquisition experts, because those two fields overlap with each other and have a long—and will be a great determiner on how successful we are in pulling our projects together.

PREPARED STATEMENT

Finally, in my role as Under Secretary of Energy for Nuclear Security, I've made better coordination of the Department's environmental management programs in the NNSA and the Office of Legacy Management as one of my priorities.

We have great opportunities in this area. And I look forward to any question in this particular area.

Thank you again for having me today, and I'm happy to answer any questions that you may have.

[The statement follows:]

PREPARED STATEMENT OF THOMAS P. D'AGOSTINO

INTRODUCTION

Chairman Feinstein, Ranking Member Alexander, and members of the subcommittee: good afternoon and thank you for having me here to discuss the President's fiscal year 2013 budget request. Your ongoing support for the men and women of National Nuclear Security Administration (NNSA) and the work they do, and your bipartisan leadership on some of the most challenging national security issues of our time, has helped keep the American people safe, helped protect our allies, and enhanced global security.

Earlier this month, President Obama released his budget for fiscal year 2013. As you know, due in part to the constraints established by the Budget Control Act, this is a time of fiscal austerity. I want to assure you that NNSA is being thoughtful, pragmatic, and efficient in how we achieve the President's nuclear security objectives and shape the future of nuclear security. We have continuously improved the way we operate, and we are committed to doing our part in this constrained budget environment.

ACHIEVING THE PRESIDENT'S NUCLEAR SECURITY OBJECTIVES, SHAPING THE FUTURE

In April 2009 in Prague, President Obama shared his vision for a world without nuclear weapons, free from the threat of nuclear terrorism, and united in our approach toward shared nuclear security goals. The President's fiscal year 2013 request for NNSA is $11.5 billion, an increase of $536 million, or 4.9 percent, more than the fiscal year 2012 appropriation. The request reaffirms the national commitment to his vision, applying world-class science that addresses our Nation's greatest nuclear security challenges and building NNSA's 21st century nuclear security enterprise through key investments in our people and infrastructure, including the revitalization of our existing facilities.

We are doing this in a number of key ways. We are continuing our critical work to maintain the Nation's nuclear stockpile, and ensuring that, as long as nuclear weapons exist, the stockpile is safe, secure, and effective. The fiscal year 2013 budget provides $7.58 billion for our weapons activities account, an increase of 5 percent more than fiscal year 2012, to implement the President's strategy in coordination with our partners at the Department of Defense (DOD).

The President continues to support our life extension programs (LEPs) including funding for B61–12 activities in response to the Nuclear Weapons Council's (NWC) anticipated approval and entry into Phase 6.3 Development Engineering. He has also requested increased funding for our stockpile systems to support the W78 and W88 life-extension study, which I discussed with you last year.

The President's budget also reflects his commitment to completing key dismantlements, with $51.3 million requested in fiscal year 2013 to continue reducing the number of legacy nuclear weapons retired from the stockpile. NNSA has previously committed to completing the dismantlement of all warheads retired as of fiscal year 2009 by fiscal year 2022, and we continue to be on a path to do that. In fact, in fiscal year 2011, NNSA completed the dismantlement of the last B53 nuclear bomb, one of the largest ever built, ahead of schedule and under budget. We also eliminated the last components of the W70 warhead which was originally in the U.S. Army's arsenal.

Our request for investments in the science, technology, and engineering that support NNSA's missions will ensure that our national security laboratories continue to lead the world in advanced scientific capabilities:

—$150.6 million is requested for our engineering campaign, which reflects the need for validation-related testing and surety options required for current and future refurbishments;

—$350.1 million is requested for our science campaign, expanding and refining our experiments and capabilities, which coupled to simulation, improves our confidence in and broadens the national security application of our predictive capabilities; and

—$460 million is requested for our inertial confinement fusion and high-yield campaign, to operate NNSA's suite of world-leading high-energy density facilities—National Ignition Facility (NIF), Omega, and Z—to support stockpile stewardship in a safe and secure manner.

The Advanced Simulation and Computing (ASC) Campaign's request of $600 million is required for the continued improvement of full-system calculations and metric suites that are essential to annual assessments and also to future stockpile changes. Our capabilities directly impact our stockpile by generating incredibly sophisticated models against which we can validate our nuclear weapons codes. Not only has supercomputing helped us solve some existing questions such as energy balance, it also allows us to plan for issues that impact the future health of our deterrent—aging, component lifetimes, and new models for abnormal and hostile environment certification. Supercomputing is critical for life extension programs and stockpile modernization—the implementation of various concepts such as reuse and enhanced multipoint safety are only possible with the power of ASC platforms.

For more than a decade, NNSA has been building the science, technology, and engineering tools and capabilities needed to take care of the stockpile. We are now entering a time when we will fully utilize these analytical tools and capabilities towards the mission of maintaining a safe, secure, and effective stockpile and performing the necessary life-extension work. These capabilities also provide the critical base for nonproliferation and counterterrorism work, allowing us to apply our investments to the full scope of our mission.

To support our stockpile and to continue producing the world-class capabilities we need to modernize our cold war-era facilities and maintain the Nation's expertise in uranium processing and plutonium research. This budget includes $2.24 billion to maintain our infrastructure and execute our construction projects.

The President also requests support for infrastructure improvements necessary to maintain the stockpile well into the future. Major efforts include extending the life of enduring facilities needed for directed stockpile work (DSW) and science, technology, and engineering (ST&E) program requirements, construction of the Uranium Processing Facility at Y–12, and construction of the transuranic (TRU) Waste Facility at Los Alamos National Laboratory. Funding will also provide for the start of construction of the Electrical Infrastructure Upgrades project at Lawrence Livermore and Los Alamos National Laboratories, and continued construction activities for various projects at Los Alamos and Sandia National Laboratories, the Y–12 National Security Complex, and Pantex. The budget request also includes the resources we need to ensure a comprehensive physical and cyber security posture that provides strong security to support NNSA missions—protecting our nuclear materials, facilities, and information.

However, our nuclear deterrent is only one part of NNSA's mission. Our nonproliferation programs perform an equally critical function. One of our most important missions has been to support the administration's commitment to secure the most vulnerable nuclear material across the globe in 4 years. Our accomplishments in securing plutonium and highly enriched uranium around the world have made

it significantly more difficult to acquire and traffic the materials required to make an improvised nuclear device, and I am proud to say that we are on track to meet our goals to remove or dispose of 4,353 kilograms of highly enriched uranium and plutonium in foreign countries and equip approximately 229 buildings containing weapons-usable material with state-of-the-art security upgrades.

The Defense Nuclear Nonproliferation budget request provides the $2.46 billion to continue these and other critical nonproliferation and nuclear security efforts. Our continued focus on innovative and ambitious nonproliferation and nuclear security efforts is vital. The threat is not gone, and the consequences of nuclear terrorism and state proliferation would be devastating. Detonation of a nuclear device anywhere in the world would lead to significant loss of life and overwhelming economic, political, and psychological consequences. We must remain committed to reducing the risk of nuclear terrorism and state-based proliferation.

But there is no silver bullet solution, which is why we will continue to implement a multilayered strategy to strengthen the security of nuclear material around the world by removing or eliminating it when we can; consolidating and securing it if elimination is not an option; reducing the civilian use of highly enriched uranium particularly for research and medical isotope productions where low-enriched uranium options exist of can be developed; and maintaining our commitment to detecting and deterring nuclear smuggling. Many of you are familiar with the significant contributions NNSA's Second Line of Defense program has made to the worldwide effort to combat nuclear trafficking. In light of the constrained budget environment that we find ourselves in, NNSA has initiated a strategic review of the program to evaluate what combinations of capabilities and programs make the most effective contribution to national security.

We will continue to research and develop tools and technologies to detect the proliferation of nuclear materials as well as nuclear detonations. We will provide technical support and leadership to our interagency colleagues during the negotiation and implementation of arms control treaties, as we did with New Strategic Arms Reduction Treaty (New START). We will expand on our ongoing efforts to strengthen the capabilities of our foreign partners to implement international nonproliferation and nuclear security norms, and support the critically important work of the International Atomic Energy Agency. We will continue to play a supporting role in the negotiation of Peaceful Nuclear Cooperation Agreements (123 Agreements), which are so crucial for achieving our nuclear nonproliferation and trade objectives.

The President's fiscal year 2013 budget request also keeps focus on our commitment to eliminate U.S. excess weapons materials and supports the Mixed Oxide (MO_X) Fuel Fabrication Facility and Waste Solidification Building at the Savannah River Site in South Carolina. The $569.5 million committed to the MO_X and related activities this year will lead to the permanent elimination of enough plutonium for at least 8,500 nuclear weapons, which will be matched by similar commitments by the Russian Federation. We have eliminated the line item for a Pit Disassembly and Conversion Facility for the MO_X program, opting instead for a preferred alternative approach to producing feedstock that is much less costly by utilizing existing facilities at the Savannah River Site and Los Alamos National Laboratory.

In addition, the fiscal year 2013 budget request gives us the resources we need to maintain our one-of-a-kind emergency response capabilities, which allow us to respond to a nuclear or radiological incidents anywhere in the world. In fiscal year 2011, we were able to assist the United States military, military families, and the Japanese people by deploying our unique emergency response assets in the aftermath of devastating tsunami that affected the Fukushima Daiichi Nuclear Power Plant.

In response to the President's concern regarding the threat of nuclear terrorism, which is also a key goal within the 2010 Nuclear Posture Review, we have established a new organization that is now the focal point for all counterterrorism and counter proliferation activities within NNSA. This organization, the Office of Counterterrorism and Counterproliferation, not only provides unique technical contributions based on NNSA's core nuclear science and technology expertise, but also is designed to coordinate all nuclear counterterrorism, counterproliferation, and postdetonation nuclear forensics related efforts without drastic restructuring.

In addition, NNSA's Naval Reactors program directly supports all aspects of the U.S. Navy's nuclear fleet, which encompasses the Navy's submarines and aircraft carriers, more than 40 percent of the U.S. Navy's major combatants. Currently, the nuclear fleet is composed of 54 attack submarines, 14 ballistic missile submarines, 4 guided missile submarines, and 11 aircraft carriers. More than 8,300 nuclear-trained Navy personnel safely operate the propulsion plants on these ships all over the world, and their consistent forward presence protects our national interests. Our $1.1 billion fiscal year 2013 request will support the refueling overhaul for the S8G

land-based prototype reactor, the design of the *Ohio* replacement reactor plant, and recapitalization of our naval spent nuclear fuel infrastructure.

Each of the projects is critical to fulfillment of the Navy's longer term needs. The S8G land-based prototype refueling overhaul reactor plant has served naval reactors' needs for research, development, and training since 1978, and the reactor provides a cost-effective testing platform for new technologies and components before they are introduced. To continue vital research capabilities, as well as train sufficient operators to man the Fleet, the S8G land-based prototype refueling overhaul must begin in 2018. The *Ohio* replacement reactor plant design continues and the fiscal year 2013 requested amount supports continuing this work to meet the Navy's revised schedule and procurement of reactor plant components in 2019 (to support a 2021 lead-ship procurement). We need to recapitalize its naval spent fuel infrastructure in a cost-effective way that does not impede the refueling of active ships and their return to operations. The existing facility is more than 50 years old and was never designed for its current primary mission of packaging naval spent nuclear fuel for permanent dry storage.

And finally, $411 million is requested for NNSA's Office of the Administrator account. This funds Federal personnel and provides for resources necessary to plan, manage, and oversee the operation of NNSA missions which strengthen U.S. security.

DOING OUR PART

We are committed to being responsible stewards of taxpayer dollars. We have taken steps to ensure that we are building a capabilities-based enterprise focused on needs and solutions. We view this constrained budget environment as an additional incentive to ask ourselves how we can re-think the way we are operating, how we can innovate, and how we can get better.

For example, in close consultation with our national laboratories and national security sites, we are adjusting our plutonium strategy by deferring for at least 5 years construction of the Chemistry and Metallurgy Research Replacement Nuclear Facility (CMRR–NF) project at Los Alamos National Laboratory and focusing instead on how we can meet our plutonium needs on an interim basis by using the capabilities and expertise found at existing facilities. Utilizing existing facilities will allow us to meet anticipated near-term requirements for plutonium operations while focusing on other key modernization projects. Deferring CMRR–NF will have an estimated cost avoidance from 2013 to 2017 that totals approximately $1.8 billion, which will help offset the costs of other priorities such as Weapons Lifetime Extension programs and other infrastructure needs.

We have also updated our strategy to stop the spread of dangerous nuclear material as we meet the President's 4-year lockdown goal. We have developed an innovative approach to scientist engagement tailored for an age when knowledge spreads effortlessly through Google, Facebook, and Twitter.

We are not resting on old ideas to solve tomorrow's problems—we're shaping the future of nuclear security, and we're doing it in a fiscally responsible way. However, I want to stress that as we make adjustments and look toward the future, our plans are based on the fiscal year 2013 budget request, which give us the resources we need to carry out our mission. Budget uncertainty adds cost and complexity to how we achieve our goals. You have been supportive of our efforts in the past, I ask again for your help in providing the stability we need to do our jobs efficiently and effectively.

CONTINUOUSLY IMPROVING

I would like to acknowledge that I have come before you in the past and talked at length about how NNSA has been working to change the way we do business. I am proud of the work the men and women of our NNSA have done to come together and operate as one. We are defining ourselves as a fully integrated enterprise that operates efficiently, is organized to succeed, that performs our work seamlessly, and speaks with one voice.

We are improving everywhere, from our governance model to our network infrastructure, from our contracting processes to leadership and development programs. We are improving business processes by implementing the ISO 9001 standard, looking toward the future through a workforce analysis, and improving efficiency through consolidated contracts.

We are continuously improving so we are able to do the work the American people need us to do, in a time when everyone is looking to do more with less. We are positioning ourselves for the next decade by making big decisions focused on the future.

For example, after more than 2 years of analysis and outside reviews, we released a request for proposal (RFP) for the combined management of the Y–12 National Security Complex and Pantex Plant, with an option for phase-in of Tritium Operations performed at the Savannah River Site. Combining contracts and site offices will allow us to improve performance, reduce the cost of work, and operate as an integrated enterprise. We also decided to compete the contract for management and operation of Sandia National Laboratories, a move designed to find meaningful improvement in performance and reduce cost for taxpayers.

We have taken other significant steps to continue improving, from top-to-bottom. We created an Acquisition and Project Management organization to help institutionalize our commitment to improving the way we do business. This move will improve the quality of our work while keeping our projects on time and on budget.

We awarded a Blanket Purchasing Agreement (BPA) for Enterprise Construction Management Services. The BPA will standardize our approach to project management across the enterprise and provide subject-matter experts to provide independent analysis and advice related to the design and construction of facilities.

And, importantly, we have institutionalized a culture of safety. Through a unique series of Biennial Reviews, including reviews at headquarters, we have improved nuclear safety across our Nuclear Security Enterprise. We have provided objective, value-added information to managers that ensure our nuclear safety oversight is consistent and effective. Since the reviews began in 2005, we have seen continuous improvement at every site.

We are also improving the way we work with our partners across the Department of Energy (DOE). In my role as Under Secretary of Energy for Nuclear Security, I have made better coordination with DOE's Office of Environmental Management and Office of Legacy Management key priorities.

For example, by partnering with the Office of Environmental Management, we have been able to share investments in our current infrastructure at the Savannah River Site. Using H-Canyon to eliminate surplus weapons-grade plutonium is a cost-effective approach for producing plutonium oxide for the MO_X Facility that utilizes current resources and capabilities, and saves jobs. We are also taking care to make good use of past investments. For example, 40 grams of curium worth $8.8 million that was no longer needed for stockpile stewardship was transferred from the Los Alamos National Laboratory to the Idaho and Oak Ridge National Laboratories for use in energy R&D and for production of new isotopes.

We are also working with the Office of Legacy Management to benchmark long-term surveillance and maintenance costs. Large closed sites with on-going groundwater issues, such as Fernald, Rocky Flats, Weldon Spring, Tuba City, and Mound, may have postclosure requirements similar to some of the Savannah River facilities, so we are learning from each other by comparing scope and cost to refine our estimates.

CONCLUSION

Our mission is vital, and your past support has been key in helping us accomplish it. The fiscal year 2013 budget reflects our commitment to keeping the American people safe while continuously improving and doing our part in a time of fiscal austerity. We are looking toward the future and building an organization that is aligned to succeed. I look forward to working with each of you to help us do that. Thank you.

NATIONAL NUCLEAR SECURITY ADMINISTRATION—APPROPRIATION AND PROGRAM SUMMARY TABLES—OUTYEAR APPROPRIATION SUMMARY TABLES—FISCAL YEAR 2013 BUDGET TABLES

NATIONAL NUCLEAR SECURITY ADMINISTRATION—OVERVIEW—APPROPRIATION SUMMARY [1, 2]

[In thousands of dollars]

	Fiscal year 2011 current	Fiscal year 2012 enacted	Fiscal year 2013 request	Fiscal year 2014 request	Fiscal year 2015 request	Fiscal year 2016 request	Fiscal year 2017 request
Office of the Administrator:							
Program direction	398,993	410,000	411,279	418,742	426,599	434,848	444,276
Rescission of prior year balances	−5,700	.....	.....	.....	.....	.....	.....
Total, Office of the Administrator	393,293	410,000	411,279	418,742	426,599	434,848	444,276
Weapons Activities Appropriation:							
Defense Programs:							
Directed stockpile work	1,905,078	1,873,694	2,088,274	.....	.....	.....	.....
Science campaign	366,167	332,958	350,104	.....	.....	.....	.....
Engineering campaign	142,010	142,636	150,571	.....	.....	.....	.....
Inertial confinement fusion ignition and high-yield campaign	478,105	474,812	460,000	.....	.....	.....	.....
Advanced simulation and computing campaign	613,620	618,076	600,000	.....	.....	.....	.....
Readiness campaign	91,695	128,406	130,095	.....	.....	.....	.....
Readiness in technical base and facilities	1,842,519	2,004,785	2,239,828	.....	.....	.....	.....
Secure transportation asset	251,806	242,802	219,361	.....	.....	.....	.....
Total, Defense Programs	5,691,000	5,818,169	6,238,233	.....	.....	.....	.....
Nuclear counterterrorism incident response	232,503	220,969	247,552	.....	.....	.....	.....
Facilities and infrastructure recapitalization program	93,574	96,120	.....	.....	.....	.....	.....
Site stewardship	104,727	78,581	90,001	.....	.....	.....	.....
Safeguards and security:							
Defense nuclear security	717,722	695,679	.....	.....	.....	.....	.....
Cyber security	124,231	126,370	.....	.....	.....	.....	.....
Subtotal, Safeguards and security	841,953	822,049	.....	.....	.....	.....	.....
Defense nuclear security	.....	.....	643,285	.....	.....	.....	.....
National Nuclear Security Administration Chief Information Officer activities	.....	.....	155,022	.....	.....	.....	.....
Science, technology, and engineering capability	19,794	.....	.....	.....	.....	.....	.....
National security applications	.....	10,000	18,248	.....	.....	.....	.....
Legacy contractor pensions	.....	168,232	185,000	.....	.....	.....	.....

NATIONAL NUCLEAR SECURITY ADMINISTRATION—OVERVIEW—APPROPRIATION SUMMARY [1, 2]—Continued

[In thousands of dollars]

	Fiscal year 2011 current	Fiscal year 2012 enacted	Fiscal year 2013 request	Fiscal year 2014 request	Fiscal year 2015 request	Fiscal year 2016 request	Fiscal year 2017 request
Use of prior year balances	−67,776	.....	.....	.....	.....	.....	.....
Rescission of prior year balances	−50,000	.....	.....	.....	.....	.....	.....
Total, weapons activities	6,865,775	7,214,120	7,577,341	7,613,033	7,755,866	7,905,841	8,077,242
Defense nuclear nonproliferation:							
Nonproliferation and verification research and development	355,407	354,150	548,186	412,622	420,344	428,417	437,719
Nonproliferation and international security	147,494	153,594	150,119	156,363	167,070	173,718	177,490
International nuclear materials protection and cooperation	578,633	569,927	311,000	282,628	288,026	293,870	300,171
Fissile materials disposition	802,198	685,386	921,305	950,000	960,000	975,000	996,170
Global threat reduction initiative	444,689	498,000	466,021	485,775	494,866	504,371	515,322
Legacy contractor pensions	.....	55,823	62,000	63,138	64,320	65,555	66,978
Use of prior year balances	−2,050	.....	.....	.....	.....	.....	.....
Rescission of prior year balances	−45,000	−21,000	.....	.....	.....	.....	.....
Total, Defense nuclear nonproliferation	2,281,371	2,295,880	2,458,631	2,350,526	2,394,626	2,440,931	2,493,850
Naval reactors:							
Naval reactors	986,526	1,080,000	1,088,635	1,108,391	1,129,186	1,151,021	1,175,975
Rescission of prior year balances	−1,000	.....	.....	.....	.....	.....	.....
Total, Naval reactors	985,526	1,080,000	1,088,635	1,108,391	1,129,186	1,151,021	1,175,975
Total, National Nuclear Security Administration	10,525,965	11,000,000	11,535,886	11,490,692	11,706,277	11,932,641	12,191,343

[1] The annual totals include an allocation to NNSA from DOD. The amounts included are $677,076 in fiscal year 2014; $712,344 in fiscal year 2015; $766,924 in fiscal year 2016; and $781,204 in fiscal year 2017.

[2] Fiscal year 2012 enacted reflects a rescission of $27,300 associated with savings from the contractor pay freeze. Of the $27,300, $19,877 was rescinded from weapons activities and $7,423 was rescinded from Defense Nuclear Nonproliferation.

NATIONAL NUCLEAR SECURITY ADMINISTRATION FUTURE-YEARS NUCLEAR SECURITY PROGRAM [1]

[In thousands of dollars]

	Fiscal year 2013 request	Fiscal year 2014 request	Fiscal year 2015 request	Fiscal year 2016 request	Fiscal year 2017 request
National Nuclear Security Administration:					
Office of the Administrator	411,279	418,742	426,599	434,848	444,276
Weapons activities	7,577,341	7,613,033	7,755,866	7,905,841	8,077,242
Defense nuclear nonproliferation	2,458,631	2,350,526	2,394,626	2,440,931	2,493,850
Naval reactors	1,088,635	1,108,391	1,129,186	1,151,021	1,175,975
Total, National Nuclear Security Administration	11,535,886	11,490,692	11,706,277	11,932,641	12,191,343

[1] The annual totals include an allocation to NNSA from DOD. The amounts included are $677,076 in fiscal year 2014; $712,344 in fiscal year 2015; $766,924 in fiscal year 2016; and $781,204 in fiscal year 2017.

OFFICE OF THE ADMINISTRATOR—OVERVIEW—APPROPRIATION SUMMARY BY PROGRAM

[In thousands of dollars]

	Fiscal year 2011 current	Fiscal year 2012 enacted	Fiscal year 2013 request
Office of the Administrator:			
National Nuclear Security Administration program direction:			
Salaries and benefits	282,967	301,995	304,474
Travel	16,536	15,500	15,500
Support services	22,445	20,500	20,500
Other related expenses	77,045	72,005	70,805
Subtotal, Office of the Administrator	398,993	410,000	411,279
Rescission of prior year balances	−5,700	.....	.....
Total, Office of the Administrator	393,293	410,000	411,279

OUTYEAR APPROPRIATION SUMMARY BY PROGRAM

[In thousands of dollars]

	Fiscal year 2014 request	Fiscal year 2015 request	Fiscal year 2016 request	Fiscal year 2017 request
Office of the Administrator:				
National Nuclear Security Administration program direction:				
Salaries and benefits	311,937	319,794	328,043	337,471
Travel	15,500	15,500	15,500	15,500
Support services	20,500	20,500	20,500	20,500
Other related expenses	70,805	70,805	70,805	70,805
Total, Office of the Administrator	418,742	426,599	434,848	444,276

WEAPONS ACTIVITIES—OVERVIEW—APPROPRIATION SUMMARY BY PROGRAM

[In thousands of dollars]

	Fiscal year 2011 current	Fiscal year 2012 enacted	Fiscal year 2013 request
Weapons activities:			
Directed stockpile work	1,905,078	1,873,694	2,088,274
Science campaign	366,167	332,958	350,104
Engineering campaign	142,010	142,636	150,571
Inertial confinement fusion ignition and high-yield campaign	478,105	474,812	460,000
Advanced simulation and computing campaign	613,620	618,076	600,000

WEAPONS ACTIVITIES—OVERVIEW—APPROPRIATION SUMMARY BY PROGRAM—Continued

[In thousands of dollars]

	Fiscal year 2011 current	Fiscal year 2012 enacted	Fiscal year 2013 request
Readiness campaign	91,695	128,406	130,095
Readiness in technical base and facilities	1,842,519	2,004,785	2,239,828
Secure transportation asset	251,806	242,802	219,361
Nuclear counterterrorism incident response	232,503	220,969	247,552
Facilities and infrastructure recapitalization program	93,574	96,120	.....
Site stewardship	104,727	78,581	90,001
Defense nuclear security	717,722	695,679	643,285
Cyber security	124,231	126,370	.....
National Nuclear Security Administration Chief Information Officer activities	.....	.....	155,022
Science, technology, and engineering capability	19,794	.....	.....
National security applications	.....	10,000	18,248
Legacy contractor pensions	.....	168,232	185,000
Subtotal, Weapons activities	6,983,551	7,214,120	7,577,341
Use of prior year balances	−67,776	.....	.....
Rescission of prior year balances	−50,000	.....	.....
Total, Weapons activities	6,865,775	7,214,120	7,577,341

Outyear Appropriation Summary by Program

The outyear numbers for weapons activities do not reflect programmatic requirements. Rather, they are an extrapolation of the fiscal year 2013 request based on rates of inflation in the Budget Control Act of 2011. The administration will develop outyear funding levels based on actual programmatic requirements at a later date.

DIRECTED STOCKPILE WORK—FUNDING PROFILE BY SUBPROGRAM AND ACTIVITY

[In thousands of dollars]

	Fiscal year 2011 current	Fiscal year 2012 enacted	Fiscal year 2013 request
Directed stockpile work:			
Life-extension programs	248,357	479,098	543,931
Stockpile systems	651,333	486,123	590,409
Weapons dismantlement and disposition	57,968	56,591	51,265
Stockpile services	947,420	851,882	902,669
Total, Directed stockpile work	1,905,078	1,873,694	2,088,274

Outyear Funding Profile by Subprogram and Activity

The outyear numbers for weapons activities do not reflect programmatic requirements. Rather, they are an extrapolation of the fiscal year 2013 request based on rates of inflation in the Budget Control Act of 2011. The administration will develop outyear funding levels based on actual programmatic requirements at a later date.

SCIENCE CAMPAIGN—FUNDING PROFILE BY SUBPROGRAM AND ACTIVITY

[In thousands of dollars]

	Fiscal year 2011 current	Fiscal year 2012 enacted	Fiscal year 2013 request
Total, Science campaign	366,167	332,958	350,104

Outyear Funding Profile by Subprogram and Activity

The outyear numbers for weapons activities do not reflect programmatic requirements. Rather, they are an extrapolation of the fiscal year 2013 request based on

rates of inflation in the Budget Control Act of 2011. The administration will develop outyear funding levels based on actual programmatic requirements at a later date.

ENGINEERING CAMPAIGN—FUNDING PROFILE BY SUBPROGRAM AND ACTIVITY

[In thousands of dollars]

	Fiscal year 2011 current	Fiscal year 2012 enacted	Fiscal year 2013 request
Total, Engineering campaign	142,010	142,636	150,571

Outyear Funding Profile by Subprogram and Activity

The outyear numbers for weapons activities do not reflect programmatic requirements. Rather, they are an extrapolation of the fiscal year 2013 request based on rates of inflation in the Budget Control Act of 2011. The administration will develop outyear funding levels based on actual programmatic requirements at a later date.

INERTIAL CONFINEMENT FUSION IGNITION AND HIGH-YIELD CAMPAIGN—FUNDING PROFILE BY SUBPROGRAM AND ACTIVITY

[In thousands of dollars]

	Fiscal year 2011 current	Fiscal year 2012 enacted	Fiscal year 2013 request
Total, Inertial confinement fusion and high-yield campaign	478,105	474,812	460,000

Outyear Funding Profile by Subprogram and Activity

The outyear numbers for weapons activities do not reflect programmatic requirements. Rather, they are an extrapolation of the fiscal year 2013 request based on rates of inflation in the Budget Control Act of 2011. The administration will develop outyear funding levels based on actual programmatic requirements at a later date.

ADVANCED SIMULATION AND COMPUTING CAMPAIGN—FUNDING PROFILE BY SUBPROGRAM AND ACTIVITY

[In thousands of dollars]

	Fiscal year 2011 current	Fiscal year 2012 enacted	Fiscal year 2013 request
Total, Advanced simulation and computing campaign	613,620	618,076	600,000

Outyear Funding Profile by Subprogram and Activity

The outyear numbers for weapons activities do not reflect programmatic requirements. Rather, they are an extrapolation of the fiscal year 2013 request based on rates of inflation in the Budget Control Act of 2011. The administration will develop outyear funding levels based on actual programmatic requirements at a later date.

READINESS CAMPAIGN—FUNDING PROFILE BY SUBPROGRAM AND ACTIVITY

[In thousands of dollars]

	Fiscal year 2011 current	Fiscal year 2012 enacted	Fiscal year 2013 request
Total, Readiness campaign	91,695	128,406	130,095

Outyear Funding Profile by Subprogram and Activity

The outyear numbers for weapons activities do not reflect programmatic requirements. Rather, they are an extrapolation of the fiscal year 2013 request based on rates of inflation in the Budget Control Act of 2011. The administration will develop outyear funding levels based on actual programmatic requirements at a later date.

READINESS IN TECHNICAL BASE AND FACILITIES—FUNDING PROFILE BY SUBPROGRAM AND ACTIVITY

[In thousands of dollars]

	Fiscal year 2011 current	Fiscal year 2012 enacted	Fiscal year 2013 request
Readiness in technical base and facilities:			
Operations of facilities	1,255,307	1,281,847	1,419,403
Program readiness	69,736	73,962	.....
Material recycle and recovery	77,493	77,780	.....
Containers	27,820	28,892	.....
Storage	23,945	31,196	.....
Nuclear operations capability support	.....	.....	203,346
Science, technology, and engineering support	.....	.....	166,945
Subtotal, Operations and maintenance	1,454,301	1,493,677	1,789,694
Construction	388,218	511,108	450,134
Total, Readiness in technical base and facilities	1,842,519	2,004,785	2,239,828

Outyear Funding Schedule by Subprogram and Activity

The outyear numbers for weapons activities do not reflect programmatic requirements. Rather, they are an extrapolation of the fiscal year 2013 request based on rates of inflation in the Budget Control Act of 2011. The administration will develop outyear funding levels based on actual programmatic requirements at a later date.

SECURE TRANSPORTATION ASSET—FUNDING PROFILE BY SUBPROGRAM AND ACTIVITY

[In thousands of dollars]

	Fiscal year 2011 current	Fiscal year 2012 enacted	Fiscal year 2013 request
Secure Transportation Asset [STA]:			
Operations and equipment	156,877	144,800	114,965
Program direction	94,929	98,002	104,396
Total, Secure Transportation Asset	251,806	242,802	219,361

SECURE TRANSPORTATION ASSET—OPERATIONS AND EQUIPMENT—FUNDING PROFILE BY SUBPROGRAM AND ACTIVITY

[In thousands of dollars]

	Fiscal year 2011 current	Fiscal year 2012 enacted	Fiscal year 2013 request
Operations and equipment:			
Mission capacity	83,718	84,376	56,458
Security safety capability	34,670	19,986	22,457
Infrastructure and C5 systems	28,867	29,449	24,199
Program management	9,622	10,989	11,851
Total, Operations and equipment	156,877	144,800	114,965

SECURE TRANSPORTATION ASSET—PROGRAM DIRECTION—FUNDING PROFILE BY SUBPROGRAM AND ACTIVITY

[Dollars in thousands]

	Fiscal year 2011 current	Fiscal year 2012 enacted	Fiscal year 2013 request
Program Direction:			
Salaries and benefits	$79,644	$82,613	$84,878
Travel	$8,334	$7,758	$7,216
Other Related expenses	$6,951	$7,631	$12,302
Total, Program direction	$94,929	$98,002	$104,396
Total, Full-time equivalents	637	622	639

Outyear Funding Profile by Subprogram and Activity

The outyear numbers for weapons activities do not reflect programmatic requirements. Rather, they are an extrapolation of the fiscal year 2013 request based on rates of inflation in the Budget Control Act of 2011. The administration will develop outyear funding levels based on actual programmatic requirements at a later date.

NUCLEAR COUNTERTERRORISM INCIDENT RESPONSE—FUNDING PROFILE BY SUBPROGRAM AND ACTIVITY

[In thousands of dollars]

	Fiscal year 2011 current	Fiscal year 2012 enacted	Fiscal year 2013 request
Nuclear counterterrorism incident response (Homeland Security): [1]			
Emergency response (Homeland Security) [1]	135,429	136,185	150,043
National technical nuclear forensics (Homeland Security) [1]	11,446	11,589	11,694
Emergency management (Homeland Security) [1]	7,494	7,153	6,629
Operations support (Homeland Security) [1]	8,488	8,691	8,799
International emergency management and cooperation	6,986	7,129	7,139
Nuclear counterterrorism (Homeland Security) [1]	62,660	50,222	63,248
Total, Nuclear counterterrorism incident response	232,503	220,969	247,552

[1] Office of Management and Budget (OMB) Homeland Security designation.

Outyear Target Funding Profile by Subprogram and Activity

The outyear numbers for weapons activities do not reflect programmatic requirements. Rather, they are an extrapolation of the fiscal year 2013 request based on rates of inflation in the Budget Control Act of 2011. The administration will develop outyear funding levels based on actual programmatic requirements at a later date.

FACILITIES AND INFRASTRUCTURE RECAPITALIZATION PROGRAM—FUNDING PROFILE BY SUBPROGRAM AND ACTIVITY

[In thousands of dollars]

	Fiscal year 2011 current	Fiscal year 2012 enacted	Fiscal year 2013 request
Facilities and infrastructure recapitalization program:			
Operations and maintenance [O&M]:			
Recapitalization	77,160	81,720	.....
Infrastructure planning	6,494	9,400	.....
Facility disposition	9,920	5,000	.....
Total, Operations and maintenance—facilities and infrastructure recapitalization program	93,574	96,120	.....

Outyear Funding Profile by Subprogram and Activity

The outyear numbers for weapons activities do not reflect programmatic requirements. Rather, they are an extrapolation of the fiscal year 2013 request based on rates of inflation in the Budget Control Act of 2011. The administration will develop outyear funding levels based on actual programmatic requirements at a later date.

SITE STEWARDSHIP—FUNDING PROFILE BY SUBPROGRAM AND ACTIVITY

[In thousands of dollars]

	Fiscal year 2011 current	Fiscal year 2012 enacted	Fiscal year 2013 request
Site Stewardship:			
Operations and maintenance:			
Environmental projects and operations	41,970	45,191	46,978
Energy modernization and investment program	6,618	.....	10,262
Nuclear materials integration	41,169	33,390	18,963
Corporate project management	.....	.....	13,798
Total, Operations and maintenance	89,757	78,581	90,001
Construction	14,970	.....	.....
Total, Site stewardship	104,727	78,581	90,001

Outyear Funding Profile by Subprogram and Activity

The outyear numbers for weapons activities do not reflect programmatic requirements. Rather, they are an extrapolation of the fiscal year 2013 request based on rates of inflation in the Budget Control Act of 2011. The administration will develop outyear funding levels based on actual programmatic requirements at a later date.

DEFENSE NUCLEAR SECURITY—FUNDING PROFILE BY SUBPROGRAM AND ACTIVITY

[In thousands of dollars]

	Fiscal year 2011 current	Fiscal year 2012 enacted	Fiscal year 2013 request
Defense nuclear security:			
Operations and maintenance (Homeland Security):			
Protective forces	414,166	418,758	341,676
Physical security systems	73,794	82,783	98,267
Information security	25,943	30,117	34,237
Personnel security	30,913	37,285	37,781
Materials control and accountability	35,602	34,592	34,484
Program management	78,183	75,595	96,840
Technology deployment, physical security	7,225	4,797	.....
Total, Operations and maintenance (Homeland Security)	665,826	683,927	643,285
Construction (Homeland Security)	51,896	11,752	.....
Total, Defense nuclear security	717,722	695,679	643,285

Outyear Funding Profile by Subprogram and Activity

The outyear numbers for weapons activities do not reflect programmatic requirements. Rather, they are an extrapolation of the fiscal year 2013 request based on rates of inflation in the Budget Control Act of 2011. The administration will develop outyear funding levels based on actual programmatic requirements at a later date.

CYBER SECURITY—FUNDING PROFILE BY SUBPROGRAM AND ACTIVITY

[In thousands of dollars]

	Fiscal year 2011 current	Fiscal year 2012 enacted	Fiscal year 2013 request
Cyber security (Homeland Security):			
Infrastructure program	97,735	107,374	.....
Enterprise secure computing	21,500	14,000	.....
Technology application development	4,996	4,996	.....
Total, Cyber security	124,231	126,370	.....

Outyear Funding Profile by Subprogram and Activity

The outyear numbers for weapons activities do not reflect programmatic requirements. Rather, they are an extrapolation of the fiscal year 2013 request based on rates of inflation in the Budget Control Act of 2011. The administration will develop outyear funding levels based on actual programmatic requirements at a later date.

NATIONAL NUCLEAR SECURITY ADMINISTRATION CHIEF INFORMATION OFFICER ACTIVITIES—FUNDING PROFILE BY SUBPROGRAM AND ACTIVITY

[In thousands of dollars]

	Fiscal year 2011 current	Fiscal year 2012 enacted	Fiscal year 2013 request
National Nuclear Security Administration Chief Information Officer activities:			
Cyber security (Homeland Security):			
Infrastructure program	.....	.....	111,022
Technology application development [1]	.....	.....	.....
Enterprise secure computing (Homeland Security)	.....	.....	14,000
Federal unclassified information technology	.....	.....	30,000
Total, National Nuclear Security Administration Chief Information Officer activities	.....	.....	155,022

[1] In fiscal year 2011 and fiscal year 2012 Technology Application Development is reflected in the Cyber Security program. In fiscal year 2013 funds supporting Technology Application Development were realigned to infrastructure for higher priority requirements. Technology Application initiatives are to be supported in the outyears.

Outyear Funding Profile by Subprogram and Activity

The outyear numbers for weapons activities do not reflect programmatic requirements. Rather, they are an extrapolation of the fiscal year 2013 request based on rates of inflation in the Budget Control Act of 2011. The administration will develop outyear funding levels based on actual programmatic requirements at a later date.

NATIONAL SECURITY APPLICATIONS—FUNDING PROFILE BY SUBPROGRAM AND ACTIVITY

[In thousands of dollars]

	Fiscal year 2011 current	Fiscal year 2012 enacted	Fiscal year 2013 request
Total, National security applications	.....	10,000	18,248
Total, Science, Technology, and Engineering Capability	19,794	.....	.....

Outyear Funding Profile by Subprogram and Activity

The outyear numbers for weapons activities do not reflect programmatic requirements. Rather, they are an extrapolation of the fiscal year 2013 request based on rates of inflation in the Budget Control Act of 2011. The administration will develop outyear funding levels based on actual programmatic requirements at a later date.

DEFENSE NUCLEAR NONPROLIFERATION—OVERVIEW—APPROPRIATION SUMMARY BY PROGRAM

[In thousands of dollars]

	Fiscal year 2011 current	Fiscal year 2012 enacted [1]	Fiscal year 2013 request
Defense nuclear nonproliferation:			
Nonproliferation and verification research and development	355,407	354,150	548,186
Small Business Innovation Research/Small Business Technology Transfer [Non-Add]	[5,579]	[6,245]	[11,727]
Nonproliferation and international security	147,494	153,594	150,119
International nuclear materials protection and cooperation [2]	578,633	569,927	311,000
Fissile materials disposition	802,198	685,386	921,305
Global threat reduction initiative [2]	444,689	498,000	466,021
Legacy contractor pensions	.....	55,823	62,000
Subtotal, Defense nuclear nonproliferation	2,328,421	2,316,880	2,458,631
Use of prior year balances	−2,050	.....	.....
Rescission of prior year balances	−45,000	−21,000	.....
Total, Defense nuclear nonproliferation	2,281,371	2,295,880	2,458,631

[1] Fiscal year 2012 enacted reflects rescission of $7.4 million associated with savings from the contractor pay freeze.
[2] Fiscal year 2011 total includes international contributions for INMP&C of $300,000 from South Korea; $117,000 from the United Kingdom of Great Britain; $512,076 from Norway; $540,602 from New Zealand; and $5,169,026 from Canada. International contributions for GTRI include $8,207,791 from Canada, and $499,970 from the Netherlands.

OUTYEAR APPROPRIATION SUMMARY BY PROGRAM

[In thousands of dollars]

	Fiscal year 2014 request	Fiscal year 2015 request	Fiscal year 2016 request	Fiscal year 2017 request
Defense nuclear nonproliferation:				
Nonproliferation and verification research and development	412,622	420,344	428,417	437,719
Nonproliferation and international security	156,363	167,070	173,718	177,490
International nuclear materials protection and cooperation [1]	282,628	288,026	293,870	300,171
Fissile materials disposition	950,000	960,000	975,000	996,170
Global threat reduction initiative [1]	485,775	494,866	504,371	515,322
Legacy contractor pensions	63,138	64,320	65,555	66,978
Total, Defense nuclear nonproliferation	2,350,526	2,394,626	2,440,931	2,493,850

NONPROLIFERATION AND VERIFICATION RESEARCH AND DEVELOPMENT—FUNDING PROFILE BY SUBPROGRAM AND ACTIVITY

[In thousands of dollars]

	Fiscal year 2011 current	Fiscal year 2012 enacted	Fiscal year 2013 request
Nonproliferation and verification research and development:			
Proliferation detection [PD]	229,427	222,150	240,536
Homeland security-related proliferation detection [Non-Add]	[50,000]	[50,000]	[50,000]
Nuclear detonation detection [NDD]	125,980	132,000	157,650
Domestic uranium enrichment research, development, and demonstration	.....	.....	150,000
Small Business Innovation Research/Small Business Technology Transfer [1] [Non-Add]	.....	[6,245]	[11,727]
Total, Nonproliferation and verification research and development	355,407	354,150	548,186

[1] Fiscal year 2011 current appropriation reflects the $5,579,000 transferred out of the DNN appropriation for SBIR/STTR.

OUTYEAR FUNDING PROFILE BY SUBPROGRAM AND ACTIVITY

[In thousands of dollars]

	Fiscal year 2014 request	Fiscal year 2015 request	Fiscal year 2016 request	Fiscal year 2017 request
Nonproliferation and verification research and development:				
Proliferation detection [PD]	248,312	252,955	257,790	263,369
Homeland security-related proliferation detection [Non-Add]	[50,000]	[50,000]	[50,000]	[50,000]
Nuclear detonation detection [NDD]	164,310	167,389	170,627	174,350
Domestic uranium enrichment RD&D	.....	.....	.....	.....
SBIR/STTR [Non-Add]	[8,446]	[8,941]	[9,598]	[10,461]
Total, Nonproliferation and verification R&D	412,622	420,344	428,417	437,719

NONPROLIFERATION AND INTERNATIONAL SECURITY—FUNDING PROFILE BY SUBPROGRAM AND ACTIVITY [1]

[In thousands of dollars]

	Fiscal year 2011 current	Fiscal year 2012 enacted	Fiscal year 2013 request
Nonproliferation and international security:			
Dismantlement and transparency	49,207	.....	.....
Global security engagement and cooperation	47,289	.....	.....
International regimes and agreements	39,824	.....	.....
Treaties and agreements	11,174	.....	.....
Nuclear safeguards and security	.....	54,897	54,723
Nuclear controls	.....	47,444	45,420
Nuclear verification	.....	39,969	40,566
Nonproliferation policy	.....	11,284	9,410
Total, Nonproliferation and international security	147,494	153,594	150,119

[1] The Nonproliferation and International Security Program implemented a budget structure change starting in fiscal year 2012. The structure change created a more efficient and clearer program organization with activities aligned along functional lines that reflect U.S. nonproliferation priorities and initiatives. The new structure depicts more clearly the alignment of people, technology, and resources to meet and implement nuclear nonproliferation objectives.

OUTYEAR FUNDING PROFILE BY SUBPROGRAM AND ACTIVITY

[In thousands of dollars]

	Fiscal year 2014 request	Fiscal year 2015 request	Fiscal year 2016 request	Fiscal year 2017 request
Nonproliferation and international security:				
Dismantlement and transparency	.....	.....	.....	.....
Global security engagement and cooperation	.....	.....	.....	.....
International regimes and agreements	.....	.....	.....	.....
Treaties and agreements	.....	.....	.....	.....
Nuclear safeguards and security	56,999	60,902	63,326	64,701
Nuclear controls	47,309	50,549	52,560	53,701
Nuclear verification	42,253	45,147	46,943	47,962
Nonproliferation policy	9,802	10,472	10,889	11,126
Total, Nonproliferation and international security	156,363	167,070	173,718	177,490

INTERNATIONAL NUCLEAR MATERIALS PROTECTION AND COOPERATION—FUNDING PROFILE BY SUBPROGRAM AND ACTIVITY

[In thousands of dollars]

	Fiscal year 2011 current	Fiscal year 2012 enacted	Fiscal year 2013 request
International nuclear materials protection and cooperation:			
Navy complex	34,332	33,664	39,860
Strategic rocket forces/12th main directorate	51,359	59,105	8,300
Weapons material protection [1]	93,318	80,735	46,975
Civilian nuclear sites	53,027	59,117	60,092
Material consolidation and conversion	13,867	14,306	17,000
National infrastructure and sustainability program [2]	60,928	60,928	46,199
Second line of defense	265,163	262,072	92,574
International contributions [3]	6,639	.....	.....
Total, International nuclear materials protection and cooperation	578,633	569,927	311,000

[1] Weapons Material Protection was formerly known as Rosatom Weapons Complex.
[2] National Infrastructure and Sustainability was formerly known as National Programs and Sustainability.
[3] Fiscal year 2011 total includes international contributions of $300,000 from South Korea, $117,000 from the United Kingdom of Great Britain, $512,076 from Norway, $540,602 from New Zealand, and $5,169,026 from Canada.

OUTYEAR FUNDING PROFILE BY SUBPROGRAM AND ACTIVITY

[In thousands of dollars]

	Fiscal year 2014 request	Fiscal year 2015 request	Fiscal year 2016 request	Fiscal year 2017 request
International nuclear materials protection and cooperation:				
Navy complex	39,742	39,767	39,843	39,823
Strategic rocket forces/12th main directorate	14,300	14,300	14,300	14,300
Weapons material protection [1]	54,857	54,882	54,958	54,938
Civilian nuclear sites	59,972	59,997	60,074	60,053
Material consolidation and conversion	20,000	20,000	20,000	20,000
National infrastructure and sustainability program [2]	46,081	46,106	46,182	46,162
Second line of defense	47,676	52,974	58,513	64,895
Total, International nuclear materials protection and cooperation	282,628	288,026	293,870	300,171

[1] Weapons Material Protection was formerly known as Rosatom Weapons Complex.
[2] National Infrastructure and Sustainability was formerly known as National Programs and Sustainability.

FISSILE MATERIALS DISPOSITION—FUNDING PROFILE BY SUBPROGRAM AND ACTIVITY

[In thousands of dollars]

	Fiscal year 2011 current	Fiscal year 2012 enacted	Fiscal year 2013 request
Fissile Materials Disposition:			
U.S. surplus fissile materials disposition:			
Operations and maintenance [O&M]:			
U.S. plutonium disposition	200,400	205,632	498,979
U.S. uranium disposition	25,985	26,000	29,736
Subtotal, Operations and maintenance	226,385	231,632	528,715
Construction	575,788	452,754	388,802
Total, U.S. surplus fissile materials disposition	802,173	684,386	917,517
Russian surplus fissile materials disposition: Russian materials disposition	25	1,000	3,788
Total, Fissile materials disposition	802,198	685,386	921,305

OUTYEAR FUNDING PROFILE BY SUBPROGRAM AND ACTIVITY

[In thousands of dollars]

	Fiscal year 2014 request	Fiscal year 2015 request	Fiscal year 2016 request	Fiscal year 2017 request
Fissile materials disposition:				
U.S. surplus fissile materials disposition:				
Operations and maintenance [O&M]:				
U.S. plutonium disposition	793,506	908,906	930,967	957,881
U.S. uranium disposition	30,058	33,546	33,453	30,514
Subtotal, Operations and maintenance	823,564	942,452	964,420	988,395
Construction	118,661	9,773	2,805	.....
Total, U.S. surplus fissile materials disposition	942,225	952,225	967,225	988,395
Russian surplus fissile materials disposition: Russian materials disposition	7,775	7,775	7,775	7,775
Total, Fissile materials disposition	950,000	960,000	975,000	996,170

GLOBAL THREAT REDUCTION INITIATIVE—FUNDING PROFILE BY SUBPROGRAM AND ACTIVITY

[In thousands of dollars]

	Fiscal year 2011 current	Fiscal year 2012 enacted	Fiscal year 2013 request
Global threat reduction initiative:			
Highly enriched uranium [HEU] reactor conversion	100,968	148,269	161,000
Nuclear and radiological material removal:			
Russian-origin nuclear material removal	159,031	147,000	102,000
U.S.-origin nuclear material removal	4,420	9,000	5,000
Gap nuclear material removal	9,289	45,731	61,000
Emerging threats nuclear material removal	8,768	5,000	5,000
International radiological material removal	20,660	20,000	8,000
Domestic radiological material removal (Homeland Security) [1]	19,128	20,000	19,000
Subtotal, Nuclear and radiological material removal	221,296	246,731	200,000
Nuclear and radiological material protection:			
BN–350 nuclear material protection	1,840	2,000	.....
International material protection	46,573	50,000	50,000
Domestic material protection (Homeland Security) [1]	65,304	51,000	55,021
Subtotal, Nuclear and radiological material protection	113,717	103,000	105,021
International contributions [2]	8,708	.....	.....
Total, Global threat reduction initiative	444,689	498,000	466,021

[1] Office of Management and Budget (OMB) Homeland Security designation.
[2] International contributions for GTRI include $8,207,791 from Canada, and $499,970 from the Netherlands.

OUTYEAR FUNDING PROFILE BY SUBPROGRAM AND ACTIVITY

[In thousands of dollars]

	Fiscal year 2014 request	Fiscal year 2015 request	Fiscal year 2016 request	Fiscal year 2017 request
Global threat reduction initiative:				
Highly enriched uranium [HEU] reactor conversion	177,000	183,000	185,000	195,000
Nuclear and radiological material removal:				
Russian-origin nuclear material removal	100,000	100,000	100,000	95,000

OUTYEAR FUNDING PROFILE BY SUBPROGRAM AND ACTIVITY—Continued

[In thousands of dollars]

	Fiscal year 2014 request	Fiscal year 2015 request	Fiscal year 2016 request	Fiscal year 2017 request
U.S.-origin nuclear material removal	5,000	5,000	6,000	8,000
Gap nuclear material removal	45,000	30,000	20,000	15,000
Emerging threats nuclear material removal	5,000	5,000	5,000	5,000
International radiological material removal	20,000	20,000	20,000	20,000
Domestic radiological material removal (Homeland Security) [1]	20,000	20,000	20,000	20,000
Subtotal, Nuclear and radiological material removal	195,000	180,000	171,000	163,000
Nuclear and radiological material protection:				
BN–350 nuclear material protection	.....	.....	.....	.....
International material protection	52,000	60,000	68,000	73,000
Domestic material protection (Homeland Security) [1]	61,775	71,866	80,371	84,322
Subtotal, Nuclear and radiological material protection	113,775	131,866	148,371	157,322
Total, Global threat reduction initiative	485,775	494,866	504,371	515,322

NAVAL REACTORS—OVERVIEW—APPROPRIATION SUMMARY BY PROGRAM

[In thousands of dollars]

	Fiscal year 2011 current	Fiscal year 2012 enacted [1]	Fiscal year 2013 request [2]
Naval reactors:			
Naval reactors operations and maintenance [O&M]	914,071	.....	.....
Naval reactors operations and infrastructure	.....	358,300	366,961
Naval reactors development	.....	421,000	418,072
S8G protype refueling	.....	99,500	121,100
Ohio replacement reactor systems development	.....	121,300	89,700
Total, Naval reactors operations and maintenance	914,071	1,000,100	995,833
Program direction	39,920	40,000	43,212
Construction	32,535	39,900	49,590
Subtotal, Naval reactors	986,526	1,080,000	1,088,635
Rescission of prior year balances	−1,000	.....	.....
Total, Naval reactors	985,526	1,080,000	1,088,635

[1] The Conference Report of H.R. 2055 Military Construction and Veterans Affairs, and Related Agencies Appropriations Act, 2012 establishing new funding controls for Naval Reactors: Naval Reactors Operations and Infrastructure, Naval Reactors Development, S8G Prototype Refueling, and *Ohio* Replacement Reactor Systems Development.

[2] Fiscal year 2013, fiscal year 2014, and fiscal year 2015 include an allocation to Naval Reactors from the Department of Defense's (DOD) Research, Development, Testing, and Evaluation (RDT&E) account entitled ''NNSA PROGRAM SUPPORT''. The amounts included for naval reactors from this DOD account are fiscal year 2013 $5.8 million; fiscal year 2014, $2 million; and fiscal year 2015, $0.9 million.

OUTYEAR APPROPRIATION SUMMARY BY PROGRAM

[In thousands of dollars]

	Fiscal year 2014 projection [1]	Fiscal year 2015 projection [1]	Fiscal year 2016 projection	Fiscal year 2017 projection
Naval reactors:				
Naval reactors operations and infrastructure	384,365	377,814	383,719	396,283
Naval reactors development	434,306	426,245	432,449	446,609
S8G prototype refueling [2]	123,327	125,522	127,760	130,054
Ohio replacement reactor systems development [2]	91,350	92,975	94,634	96,333

OUTYEAR APPROPRIATION SUMMARY BY PROGRAM—Continued

[In thousands of dollars]

	Fiscal year 2014 projection [1]	Fiscal year 2015 projection [1]	Fiscal year 2016 projection	Fiscal year 2017 projection
Program direction	49,670	52,400	54,159	56,096
Construction	25,373	54,230	58,300	50,600
Total, Naval reactors	1,108,391	1,129,186	1,151,021	1,175,975

[1] Fiscal year 2013, fiscal year 2014, and fiscal year 2015 include an allocation to Naval Reactors from the Department of Defense's (DOD) Research, Development, Testing, and Evaluation (RDT&E) account entitled ''NNSA PROGRAM SUPPORT''. The amounts included for naval reactors from this DOD account are fiscal year 2013 $5.8 million; fiscal year 2014, $2 million; and fiscal year 2015, $0.9 million.
[2] Due to the Budget Control Act of 2011 the outyear funding for S8G Prototype Refueling and *Ohio* Replacement Reactor Systems Development is under review and will be updated at a later date.

Senator FEINSTEIN. Thank you very much, Mr. D'Agostino.

Senator, if it's agreeable with you, I'd like to proceed in 5-minute increments, and we'll just go back and forth. I have a large number of questions.

Senator ALEXANDER. You can just go through for a while if you want to, if you don't want me to interrupt that. That's fine with me. I'll listen.

Senator FEINSTEIN. Well, let's see. I want you to have plenty of opportunities.

NATIONAL IGNITION FACILITY

On March 19, a letter was sent to Member Frelinghuysen and Member Visclosky signed by a substantial number of House Members on the National Ignition Facility (NIF). There have been claims made that the NIF is short $140 million, and proposed budget cuts, which I understand are $20 million, will result in the shutdown of the facility, and the layoff of 400 scientists and technicians.

Are these claims true?

Mr. D'AGOSTINO. Madam Chairman, the NIF, the Lawrence Livermore National Laboratory's (LLNL) budget, the overall laboratory budget, did go down. The budget did not go down by $140 million. The decrease at LLNL is on the order of $81 million.

The majority of that decrease is due to the completion of a procurement of a computer called the Sequoia computer, it's a supercomputer, as well as some reductions in our security budget, because we are in the process of reaching our commitment that we made a number of years ago to reduce the quantities of category one and two security for plutonium in the Livermore Valley. We're 96 percent of the way on that, and that's why we have a little bit of a decrease in security.

The reductions in the specific line, the budget line for the NIF, or Inertial Confinement Fusion Program, is about $20 million. The challenges, what we're working through right now with the laboratory, is factoring in how the laboratory and the DOE can blend what's known as an overhead rate. And this is a problem that we've known for 2 years, and we're working together to make sure that the overhead rates, the rates that the laboratory charges its internal programs, is even and consistent and meets accounting standards. And there's some challenges that we're working on with the laboratory to do that.

So I don't believe that we are talking—I'm committed that the NIF project is very important. It's important to stockpile stewardship. We are not reducing the budget by $140 million in the NIF project, and we are committed to working with the laboratory to ensure that we can get through this adjustment of their overhead rate in a way that allows the project to move forward to address its mission.

Senator FEINSTEIN. Okay, let's go into that for a minute. A decrease of $81 million because of the completion of the Sequoia program and a reduction in security. The fusion element, which I want to ask some questions about, you said is $20 million. Is that a $20 million cut?

Mr. D'AGOSTINO. Yes, it's a $20 million reduction in the NIF line. The project is essentially complete. The construction project is complete. And an element of the construction project is installing what's known as cryogenic and diagnostic tools to keep the target itself cold, the cryogenic piece, and to be able to have the tools to measure the output, the experiments.

This is the whole reason for NIF, of course, is to get this very important data. And so you need to have the diagnostics there.

The reduction is due to the fact that the procurement of those tools is done, and they're installed, and now we're just into the operation of that. And this is documented in the NIF plan itself.

So that $20 million is not because we wanted to just take money out of the laboratory, because we're trying to balance the budget. It's because that work, that specific work, is done on the project.

Senator FEINSTEIN. Okay. Now, NIF is supposed to achieve ignition by September. My question is, will it? There are some that believe it will not.

Mr. D'AGOSTINO. Achieving ignition is going to be very challenging. I'll be very upfront with this. Ignition is very important to stockpile stewardship, but achieving ignition by the end of this year will be very challenging. We've learned a lot, particularly in the last year, on how good our codes are, our simulation codes, in actually predicting the experimental data.

And we've realized, and this is actually a very good news in a way, that there are some gaps. And so we're going to focus our effort to try to understand why did our codes predict one thing and the experiments gave us some different data. It's very important that we solve that particular piece of the problem.

We will be doing credible shots on the NIF, credible meaning—our codes predicted that we should achieve ignition. Whether we do or not will have to stand the test of time. We'll know soon enough whether we can do it or not.

Senator FEINSTEIN. And if you can't achieve ignition, that becomes a very big deal in terms of testing of weapons.

Mr. D'AGOSTINO. Should I comment on that?

Senator FEINSTEIN. That's a question. Yes.

Mr. D'AGOSTINO. Okay. Achieving ignition is absolutely very important for stockpile stewardship. It's a critical element for us to be able to have confidence in our codes, in our validation codes, and it's important for us to be able to get that kind of experimental data in the very high temperature and pressure areas that only ignition can give us.

Does it mean that we fail in being able to take care of our stockpile the day after, the week after, the year after we fail to achieve ignition? Absolutely not.

Senator FEINSTEIN. Well, how much longer can the stockpile be considered safe without ignition?

Mr. D'AGOSTINO. I would put it in terms of many years. I would like to provide you a detailed answer for the record, if I could.

Senator FEINSTEIN. If you would, and we will follow up.

Mr. D'AGOSTINO. Thank you.

Senator FEINSTEIN. Is it possible that NIF will not achieve ignition?

Mr. D'AGOSTINO. It's always——

Senator FEINSTEIN. Is it only a question of time? Because you're just now pushing the September date until the end of the year.

Mr. D'AGOSTINO. Right.

Senator FEINSTEIN. So here we go.

Mr. D'AGOSTINO. Well, you know, I would say achieving ignition is a very important factor for it. It's always possible that we can achieve it, I think. But the key is, for us, is to make every concerted effort to reach ignition by making sure we have the right power and energy level on the target inside the hohlraum in order to squeeze that particular target, and getting the diagnostic tools, these measuring devices, so that when we actually do it, we actually know we actually did it. It wouldn't be right for us to try to do this too early and then not be able to actually measure the fact that we achieved it.

Senator FEINSTEIN. Well, if the original estimate was September, and it's now March, that's a substantial period of time. But what I hear you saying is, and correct me if I'm wrong, please, that the likelihood of so doing is remote, even by the end of the year.

Mr. D'AGOSTINO. I would not call it remote.

Senator FEINSTEIN. Then what is it, on a scale of 1 to 10?

Mr. D'AGOSTINO. You know, it's hard for me to put a specific number to it. I would say there is a likelihood that we will achieve ignition. I would say it's very difficult for us to predict. There are new phenomenon in squeezing the capsule itself that we hadn't predicted would come out of the experiments that we've already done.

And so we're approaching this in a stepwise fashion, because we don't want to rush all the way to full speed ahead without approaching it in a stepwise fashion.

So my sense is that we have a likelihood of achieving ignition, I would respectfully ask that I not put a number on it, because, actually, I don't want to pretend I know the actual number, is what I'm saying. We have the report—I'm sorry?

Senator FEINSTEIN. In the Senate, there was a considerable debate about whether to go ahead with this facility or not. Senator Domenici was really not a big fan of this facility. Everything we heard was, you know, this thing would achieve ignition and they would go on and do all this stuff, and fusion was a possibility.

Now, all that appears to have been changed. So what I'm saying is, the climate for funding, for finishing this facility, and this facility is major. I mean, it is a very impressive facility, just in terms of hardware alone.

I would just hate to see all the money put in not able to achieve the goal. What you have said today doesn't give me a lot of belief that it's just a question of time. What you've said is some new problem has arisen, and you need a solution to it.

Mr. D'AGOSTINO. I want to be clear that I am not saying that it's remote. I'm saying that there is a likelihood that we will achieve ignition this year. That is the goal that we have set out of the laboratory to do. We have pressed very hard.

Senator FEINSTEIN. You are saying there is a likelihood we will achieve ignition by the end of the year?

Mr. D'AGOSTINO. Yes. Yes, absolutely. And I want to be clear on that.

I also want to let you know, Madam Chairman, that we have submitted recently—Dr. Cook had sent a report to the Congress, a quarterly report, documenting the technical challenges, the successes, and the technical challenges.

A success, for example, a very significant milestone that LLNL achieved, is reaching the 1.8 megajoule target, which is all 196 beams, 1.8 megajoules into the very tiny target chamber.

And that's a very significant milestone, just the timing of 196 beams to arrive at the precise moment in time, and the pulses needed to squeeze that. The laboratory has made progress.

We've also done hundreds of experiments and shots on the facility itself, getting a tremendous amount of data that has already—the Nation is already taking advantage of it. Some of this data, because of the radiation that comes out of it, lets us test electronics, if you will, that the DOD needs to make sure can survive in different types of radiation environments.

So we are getting a significant amount of work out of the NIF as it exists today.

This ignition goal of this year, which I said we have a likelihood of achieving, will be, frankly, something that mankind has never done before. Man has never been able to harness and achieve this capability in a controlled laboratory fashion.

So there are some things that are hard to projectize in a way of just saying that it's a matter of money and time. This is a hard one to projectize, because it's never been done before.

Senator FEINSTEIN. Okay. Well, the letter that the House Members have written to the chairman and ranking member of the Appropriations subcommittee essentially says the reduction will result in the termination of approximately 100 highly trained staff, and will jeopardize LLNL's ability to support the stewardship of the Nation's nuclear weapons.

Can you comment on how many layoffs are necessitated by these cuts?

Mr. D'AGOSTINO. I think, if done correctly, there will not be any layoffs as a result of a fairly small change in the NIF budget, and a fairly small change in the laboratory's overall budget. It's a matter of management and getting the right type of blend of the overhead rate that was charged to the project.

If I may, I could add a little bit to that, depending on how much time you'd like on this.

Senator FEINSTEIN. Please, why don't you? This is a big issue and obviously is going to be in the House, too.

Mr. D'AGOSTINO. Certainly.

When the NIF project was in its construction phase, the United States Government committed a significant amount of money, as you've indicated, every year to the laboratory to construct and build and assemble this NIF.

In order to do that, we, United States Government, decided that the laboratory would be allowed to charge a lower overhead rate to the project, because, in essence, why would they charge the normal overhead rate, because this is a one-time construction project, and when construction is done, it goes back down to normal.

This change is called a self-constructed asset pool. It's a set-aside on overhead, and it's a significantly reduced overheard because we in the United States Government want the dollars to flow into the construction project, not into the overhead of the laboratory.

Once the project was completed, and it was completed a few years ago, and the national ignition campaign is completed, which will be done in September this year, we had an understanding a few years back that we would work together to have a lower—to get the laboratory off of this special overhead rate.

And this is the area, this is where you hear this number $140 million, it comes through. This is the area where we are going to work together with the laboratory to change their overhead rates across the laboratory, allow the movement of people into the NIF project appropriately, because the reality is the bottom line is the laboratory's overall budget is not going down all that much.

And so the logic of saying we have to layoff these very important scientists—Parney Albright, who is the laboratory director, and I and Don Cook, we don't want that, and so we're working together. In fact, we had a very long conference call, video conference call, last week Thursday on this, to address this very specific issue, because we recognize it was getting a lot of attention. And we can come back to that, Madam Chairman.

Senator FEINSTEIN. Thank you very much. I've taken a lot of time on this.

Senator, why don't you go ahead?

Senator ALEXANDER. Okay. It's very interesting.

OAK RIDGE URANIUM PROJECT

I'd like to talk about the two big projects, the uranium project at Oak Ridge and the New Mexico project on plutonium. And I'll start off with the uranium project at Oak Ridge.

As I understand the Administration's proposal, you plan now to accelerate construction somewhat, and to do a phase one by the year 2019. Is that right? Or roughly?

Mr. D'AGOSTINO. That's right. That's the proposal. Dr. Cook has asked for a 30-day study, which will be completed at the end of this month, in another week or so. And the leading approach on delivering on this project is the phased approach you just described.

Senator ALEXANDER. When will we know what our cost objective is for phase one?

Mr. D'AGOSTINO. Our plan right now is to complete critical decision—I shouldn't use this terminology, I apologize. Our plan is, after we reach 90 percent design, which is going to be about this fall timeframe, because there's still a fair amount of work to reach

that objective, then the department will undergo a very detailed review, it takes about 4 months or so, of the proposal put forward by our contractor down in Tennessee on this.

Then this will be independent reviews by outside experts to make sure that, because as you said earlier, Sir, once we make a commitment on how much something is going to cost, we want to make sure we can honor that commitment and honor that commitment for this 8-year period.

So my expectation is, by the end of this year, or early into next year, Sir.

Senator ALEXANDER. You have a number now, if I'm correct, of about $6.5 billion for the entire project before you lop off phase one. Is that about right?

Mr. D'AGOSTINO. The cost range right now is—that's the upper end of the Government's cost range. At this stage in the game, because we don't have the design completed, we talk about ranges, a low-end and a high-end of the range. And that $6.5 billion is there.

Senator ALEXANDER. So you might have design 90 percent complete by the fall, then it will take you another 3 or 4 months to satisfy yourself that you got the right figure. And I assume the right schedule for project completion; is that right?

Mr. D'AGOSTINO. That's absolutely right. The cost, the schedule, and the scope. What we're actually going to accomplish will be a key part of that as well.

Senator ALEXANDER. So that might be early next year that you could say to Senator Feinstein and me and what the schedule is and what the cost objective is?

Mr. D'AGOSTINO. Yes, but we would be happy to update you in the interim before then to give you an idea of how things look as we approach that time. Of course, with the President's official budget submittal in January of next year, my expectation is to make sure that that's formally documented in that particular timeframe.

Senator ALEXANDER. Well, that means you'll have to know in October and November.

Mr. D'AGOSTINO. Well, ideally, we'll have a pretty good sense in October and November, because we will have——

Senator ALEXANDER. So you'll be able to tell us about the same time you tell the Office of Management and Budget, which will probably be October, November, what you think it's going to be. And then you're going to confirm it within the next 2, 3, or 4 months.

Mr. D'AGOSTINO. Yes, Sir. We want to do a validation process. It's not simply a matter of just taking what we get and just throwing it in there. We want to get external experts.

And this is a key point that that was discussed earlier on project management, of establishing a very solid baseline of project management principles, which one of them is the 90 percent design that we've talked about; having the right people in the job to get the job done.

You brought this point up and, in fact, John Eschenberg in the audience here, who's a certified project manager at the highest levels, he's got a great reputation, he does fantastic work. We have

him assigned particularly this project, establish the baseline, get it independently checked. And that's what we want. We want the independent validation.

And then once we do that, kind of line up the funding, the project scope itself, and the right people, and then hold them accountable. And that'll be the key piece at the very end of this.

Senator ALEXANDER. Well, there's a competition going on for management of the Y12 project. And it's possible, it seems to me, that that competition could divert energy that ought to be directed toward keeping the project under cost and on budget. What's your plan to make sure that doesn't happen?

Mr. D'AGOSTINO. The plan to make sure that doesn't happen is the way we've structured the competition, by asking the people that propose, that would like to ultimately run our facility, two proposals, one is in which where we can sever out or cut out the UPF project from the project, if we needed to. So this will give the Government a number of options on how we can move forward.

We also have a wonderful team that is there; Babcock & Wilcox and Bechtel that are working together. They both committed that this is—from their standpoint, their commitment is to make sure that taxpayers get the best value and that they have committed, no matter how the competition goes, to make sure that there if there is a transition, that the transition happens appropriately.

Senator ALEXANDER. The contractor was arguing that the longer we delayed UPF, the more money we wasted because of the inefficiency of the cost of security and operations. And anyone who visits there, as I have, could easily believe that. The numbers that I used to hear when we were talking about the whole project I believe were in the neighborhood of a couple of $100 million a year in extra costs to taxpayers for every year we delayed it.

Now, if we're going to speed it up, we should be saving money, shouldn't we? If we get it done a year earlier, shouldn't we be saving as much as if we delayed it a year later?

Mr. D'AGOSTINO. We should expect to save money on two fronts. One is the fact that it's one less year of operating kind of in this less efficient way. And two is projects typically become more efficient if you compress the amount of time to actually do the project.

In addition, the phasing that you had talked about earlier, Senator Alexander, will address a portion—it's not the complete collapse of the security footprint, because we are phasing it, because we want the most important part of the project, the 9212 capabilities piece, done early instead of—we're going to move that up a few years, like 2½-years, 3½-years timeframe.

So we will save from an operational efficiency standpoint. We'll save some money from the security standpoint. We hope to do that in the near future by driving this H road right down the site and splitting it into two pieces.

And we should be able to save some resources, particularly once the facility gets operational. Those savings typically, though, particularly on the latter, the security savings and the operational savings, won't happen until that phase is completed.

Senator ALEXANDER. Well, my last question on the UPF, and then in my next opportunity I want to talk about the plutonium facility and how you're going to deal with that.

And this is the Chairman's prerogative to how she would like to do this, but I'd like to ask your advice about the example I used of when I was trying to get that highway built on time.

You've got a number of people who are accountable to you, but it seems to me that, using good Navy procedure, that there ought to be a single person accountable to Senator Feinstein and to me for an on-time, on-budget project and that ought to be you.

And that would mean, it seems to me, that it would be wise for us to have some session with you in 2 or 3 months just on this one project. And we may want to do it on others but just on this one. And say, find out how you're doing in preparing for it. And then about the time of the budget, it sounds like October or something, we need another one.

And then once you come to us, and it sounds like it'll finally be at the end of the year, early next year, and say, "Okay, this is an X-cost project. This is our plan between now and 2019", or whatever the number is, that we ought to meet on a regular, systematic basis, not to waste time, not too much, maybe a quarter, every quarter is enough, but for the sole purpose of a report about whether you're on time and whether you're on budget.

And I don't think it's up to us then to get inside and figure out why you are and why you aren't. I mean, we could do that if we want, but we're not the managers of the project; in effect, you are.

And that would be the discipline that I would think would be most likely for us to do our jobs in making sure we're saving taxpayers' money.

What's your thought and your recommendation about how that process could be most useful?

Mr. D'AGOSTINO. I like that idea. I like the idea that you as ranking and Madam Chairman are interested in wanting to deliver this project. It helps me actually do that as well, knowing that it's time on your calendars.

And I'm happy to do that. I would look forward to doing it.

I think once we get this baseline, particularly, we should establish the kind of information that is important for both of you to hear and see and gain confidence in. And in fact, I would also even suggest at some point, time permitting, that at the right moment, we schedule a short visit down to the site itself. I think it would be very illuminating. And I don't think it has to happen every year, but I think maybe when we establish that point in the sand where we say, "Okay, this is it," both your presence there would reinforce to our team, our colleagues, that this is serious business, that the Government is making a commitment, that we need a commitment, not just a contractual commitment, but a commitment to get this job done.

Senator ALEXANDER. Thanks, Madam Chairman.

It is serious business. I mean, we're talking about billions of dollars here, and we just don't have billions of dollars. We've got a debt that has to be reduced, and we've got other urgent needs just within our own budget.

Senator FEINSTEIN. Right. Thank you very much. It's a good idea, Senator. And I'd be very pleased to participate.

NATIONAL LABORATORY COSTS

Let me ask you, as long as we're on the subject of lab costs, it's my understanding that indirect costs at the national labs average 45 percent. I assume that this is overhead and administration.

This seems to me to be inordinately high. Why would an average of indirect costs be 45 percent?

Mr. D'AGOSTINO. There are a couple of reasons. One is, the cost accounting standards, each laboratory approaches cost accounting, we ask them to manage and operate, so we will not dictate on the Federal side that you have to, you know, do things everywhere across the laboratories in the exact same way.

However, each laboratory will then decide how it wants to attribute its costs for just the basic operation of the facility, whether it's turning on the lights, keeping the buildings painted, putting a roof on the facility, taking care of the grounds, the chief financial officer organization, the human capital office organization, these are high costs. We think they're very too high.

And one way we are approaching to address this particular problem, because we realize it's a real problem, because ultimately the taxpayers are paying this particular cost, is we're looking at consolidation of contracts to see if like-minded what we would call business functions, like human capital, procurement, general counsel, and the like, can be done in a more efficient way.

And by integrating contracts and by asking our contractors to buy their equipment from a central procurement source, we can save money.

Senator FEINSTEIN. Well, I've asked GAO to take a look at this.

Mr. D'AGOSTINO. Okay.

Senator FEINSTEIN. So I'd like to ask that you work closely with them and that we get figures that the Senator and I can share and see what is really at the heart of this, because it's an inordinately high figure.

PLUTONIUM PIT PRODUCTION

Let's talk a little bit about pit production. In 2007, the JASONs found that the plutonium in pits can last up to 100 years without affecting nuclear weapons' performance. Recent assessments, I'm led to believe, may indicate that pit lifetimes may even approached 200 years.

Has NNSA conducted pit-aging studies in the last 5 years?

Mr. D'AGOSTINO. Madam Chairman, we're continuing——

Senator FEINSTEIN. Yes or no?

Mr. D'AGOSTINO. Yes.

Senator FEINSTEIN. Okay.

Mr. D'AGOSTINO. And I'm not familiar with the 200-year estimate that you've provided. But the original 100 years calculation that we did, and that JASON did validate it, as you suggest.

Senator FEINSTEIN. Could we please see the results of your pit-aging studies?

Mr. D'AGOSTINO. Yes, Ma'am.

Senator FEINSTEIN. In the last 5 years?

Mr. D'AGOSTINO. Yes. It's continuous. Yes, of course.

Senator FEINSTEIN. Okay. I'd like to see it.

NNSA says that the current capacity of 10 to 20 pits per year is not enough. However, is there an identifiable need in the next 10 years to manufacture new pits? Given shrinking stockpiles, do we really need the capacity to produce 50 to 80 new pits per year?

Mr. D'AGOSTINO. We believe our current capacity, which is roughly at about the 10 to 20 pit per year capacity, is enough to take care of the stockpile needs over the next decade. We'll work closely with the Defense Department.

Senator FEINSTEIN. Good. Okay, that's good to hear.

Mr. D'AGOSTINO. There will always be a question—the term you used, the 50 to 80 pits per year term, is an element of what we call a responsive infrastructure, which once there is confidence that we have a nuclear security infrastructure in place that can take care of the Nation's need, the number of reserve warheads that we would need to maintain could actually go down even further.

Senator FEINSTEIN. Okay, but for my purposes, what you're telling us is that for the next 20 years, the 10 to 20 percent figure is enough, 10 to 20 pits is enough.

Mr. D'AGOSTINO. No, Ma'am. I would say in the next 10 years, we're confident that we take care of the—is enough, and that, in all likelihood, that can be stretched to 15 years, because we have a pretty good sense of the kind of work that we need to do.

Senator FEINSTEIN. Okay. That's what I want to know. We'll write it down and hold you to it.

Mr. D'AGOSTINO. Right. What I'd like to just add, if I could, because, unfortunately, some of these, you'd like to make these black and white. Some of them aren't so black and white.

We're in the process of conducting a study called the W78 and W88 life-extension study, you recall. And an element of that study will be to examine what is needed from a plutonium need for the country. That study is not done, so I don't want to make a presumption or force our laboratories into saying you can only come up with solutions that do the following.

The laboratories need to be free to examine all options then bring options before the Government to decide which is the right approach. So we'll have an opportunity on this.

Senator FEINSTEIN. Okay, good.

LIFE EXTENSION PROGRAMS

The W76 makes up the largest share of our nuclear deterrent on the survivable leg of the triad—nuclear submarines. Yet, the fiscal year 2013 budget request cuts the W76 life extension program by $81 million, and it delays completion by 3 years. My understanding is that this funding was shifted to support the B61 life extension program. Why did you make that decision?

Mr. D'AGOSTINO. We recognize that it's important to take care of the W76 and the B61. Particularly, the B61 is entering into a phase of work where the workload will increase if we are going to meet our milestone data 2019.

When we looked at the impacts of the fiscal year 2012 appropriation and the Budget Control Act from last summer, we recognize that we need to balance across all our programs.

Senator FEINSTEIN. But what effect will this have on the W76 in the Navy?

Mr. D'AGOSTINO. Well, the Navy's warhead, we're going to do the production requirements to meet the Navy's operational needs, which will take care of the Navy's needs by, I believe, it's the 2018 timeframe.

And what we will have done is then shifted so that the warheads that need to be on the submarines for sure are going to be taken care of. We're going to meet the production requirements with that.

Senator FEINSTEIN. So the Navy's needs are met.

Mr. D'AGOSTINO. The Navy's operational needs are met, but we need to also finish the refurbishment on the systems that are not actually going to be deployed out on—and we're going to do that. That's going to take a few more years.

But the key is to make sure the Navy's operational needs are met.

Senator FEINSTEIN. And the Navy is accepting of this transfer?

Mr. D'AGOSTINO. The Nuclear Weapons Council, which has elements of the Defense Department, the senior officials from the Defense Department who are responsible for this area, have agreed that this is an approach. I will add that that doesn't mean that everybody in the Navy thinks this is the right thing to do.

But the reality is when we've examined all of the options, when we took a look at our desire to make sure that the Navy's operational needs are met, that the proposal that we put forward is one that makes sense.

I will also add, though, that we're working very closely with the Defense Department this summer because—in fact, not right now, but we're working right now through the summer to make sure that we fully understand and agree on the fiscal year 2014 to fiscal year 2022 timeframe, make sure that that plan is all laid out.

Senator FEINSTEIN. And this will not increase the cost of the W76?

Mr. D'AGOSTINO. Well, there will be, most likely probably a slight cost increase, because we've had to stretch the production out over a few more years, because we're completing the warheads a little bit later than we had wanted to. So we have to maintain a little bit of that infrastructure in place.

But I don't think it's that significant. We can give you our best analysis on that, probably in a question for the record, to give you a sense of that.

Senator FEINSTEIN. Yes, would you please do that?

Mr. D'AGOSTINO. Yes, Ma'am.

LOS ALAMOS NATIONAL LABORATORY PLUTONIUM FACILITY

Senator FEINSTEIN. I want to speak about the termination or delay of two projects after spending a $1.5 billion on them. And you can, of course, guess what they are. One is Savannah River, and the other is the new plutonium facility at Los Alamos that's now been delayed by at least 5 years.

Why did you delay the construction? These are multi-billion dollar facilities. So you spend money and then stop. I don't understand it.

Mr. D'AGOSTINO. Well, there's a couple of things. We learned a lot in the last year, and some things have changed. And I'll describe the changes from last year to this year that led us to con-

clude, led me to conclude, because it's my decision in submitting this to the Secretary and ultimately then to the White House.

The things that changed, and I apologize in advance for maybe getting down the level of detail. We built part of the Chemistry and Metallurgy Research Replacement Facility already. It's called the radiation building. It's the radiological building that is done. It's built, and it's in place.

Senator FEINSTEIN. Are you talking about Savannah River?

Mr. D'AGOSTINO. Oh, no, I'll just start off with the—I can start with Savannah River.

Senator FEINSTEIN. Well, whichever.

Mr. D'AGOSTINO. We're starting off with the Los Alamos, New Mexico, plutonium facility.

Senator FEINSTEIN. Okay.

Mr. D'AGOSTINO. That particular facility, the radiation building, which already exists, which you appropriated resources for and we built, was originally only going to handle extremely small quantities of plutonium. And it will still handle small quantities of plutonium.

But the analysis that was done, the safety analysis that was done for that particular facility was done at a time—did not use what we would call modern, up-to-date internationally accepted dose conversion factors.

Now, this term dose conversion factor, this is somewhat of a technical term, but translated it means how would you convert material in the building to an actual dose that a human being might receive if they were exposed to this material.

In modern dose conversion factors, in the past year, we've shifted our approach to doing the safety analysis to use the most up-to-date, modern, internationally accepted dose conversation factors. That one simple change alone allowed us to shift the amount of plutonium we can have in this radiation building, which already exists, from small gram quantities, like 4 to 6 grams, up to higher gram quantities, like 34 to 39 grams of plutonium.

It doesn't sound like a lot of plutonium, and it's not a lot of plutonium. But that one change alone will allow us to do the analysis in the radiation building that we didn't think we could do there.

And in essence, it's a very significant increase in the amount of work we can do in this radiation building. That takes a tremendous amount of pressure off the desire to have the nuclear facility built and up and operating quickly, which was a big item.

The second change from last——

Senator FEINSTEIN. I'm not understanding.

Mr. D'AGOSTINO. Okay.

Senator FEINSTEIN. So you're saying that based on this new acceptable dose conversion factor——

Mr. D'AGOSTINO. Right.

Senator FEINSTEIN [continuing]. That you can now process more plutonium. Therefore, the new facility is not necessary. Is that what you're saying?

Mr. D'AGOSTINO. The new facility, the need for the new facility to take care of those items by the year—early 2020s, the pressure is off to get that done. We can actually use the facility that we have built already.

Before this, we didn't have this modern dose conversion factor piece in there. At some point in the future, and this is why we've deferred it; we haven't canceled Chemistry and Metallurgy Research (CMR). The Nation will need a facility that can consolidate all of these functions.

Senator FEINSTEIN. Okay. We've got $1.5 billion worth of facilities here, right? These two facilities? Over the last 10 years, $800 million has been spent on design of the new facility.

My understanding is that now you find you don't need it, and that the other facility is going to be used. Is that right?

Mr. D'AGOSTINO. We are going to use—we believe we can delay, defer the decision on building the actual facility, because we have flexibility as a result of this analysis, as you've correctly described.

Senator FEINSTEIN. Okay. And you're $800 million into it.

Mr. D'AGOSTINO. We are——

Senator FEINSTEIN. Over 10 years, over the past 10 years.

Mr. D'AGOSTINO. Over the past 10-year period, we spent a significant amount of money in doing the analysis, because we didn't have the modern dose conversion factors.

In fact, we had earlier on, 10 years ago, the production rates were higher, because the size of the stockpile was different and was more. There was a time many years ago that there was a discussion of a thing called the modern pit facility, which was going to make plutonium pits. That is off the table.

And in fact, because of——

Senator FEINSTEIN. Yes, the plutonium pits——

Mr. D'AGOSTINO. Because we've been illuminated by longer pit aging, because we've now been illuminated by the fact that we have a very significant and different financial environment, because we know that we have a lot of material out of the plutonium vault in the existing plutonium facility that the laboratory has cleaned up, the pressure to start today on two large, very expensive facilities, that pressure has been reduced.

And so we've decided to focus our attention on the most critical, that thing that limits us most operationally, which is the uranium capability.

That's on the Savannah River side. I think your second part of your question dealt with—asked the question on the Savannah River side.

Also, from the standpoint, we benefited in some respects, and the Secretary made a decision last year to integrate—not integrate but to have both the environmental management organization and the NNSA report to one position, this Under Secretary for Nuclear Security.

Working with the Environmental Management (EM) organization, the NNSA looked at fully utilizing the H Canyon facility in order to provide some plutonium feedstock, as well as fully utilizing the Los Alamos facility for the feedstock itself.

This is probably the other $700 million that you described on the Pit Disassembly and Conversion Facility (PDCF).

Senator FEINSTEIN. $700 million over 13 years.

Mr. D'AGOSTINO. Right. So what we wanted to do is take advantage of the fact that we've gotten—the NNSA received 4 metric tons of material of feed from the EM organization. We're going to

use the H Canyon to make a certain amount of material. And we're going to take advantage of the Los Alamos capability.

That takes the pressure off having this large PDCF. They don't make sense——

Senator FEINSTEIN. I just want you to understand that if it's been $700 million over 13 years to design a facility that you terminate, and then $800 million over 10 years. That's $1.5 billion essentially wasted.

I mean, that's the way I see it.

Mr. D'AGOSTINO. Yes, Ma'am. I make the decisions——

Senator FEINSTEIN. Based on what you——

Mr. D'AGOSTINO [continuing]. Based on what I know.

UNITED STATES ENRICHMENT CORPORATION

Senator FEINSTEIN. I understand that. We haven't even gotten to USEC yet. You want to do that on top of this?

Let's do USEC for a minute.

Given the uncertainty about the future of operations, my understanding is that there's a one-time cost of $150 million in fiscal year 2013, and that is it. Is that correct?

Mr. D'AGOSTINO. Yes, Ma'am. I've talked to Secretary Chu about this, most recently even yesterday. We have a request for the transfer authority in fiscal year 2012 coupled with the fiscal year 2013 request that is in the nonproliferation budget for $150 million to do the demonstration project.

Senator FEINSTEIN. Have things improved?

Mr. D'AGOSTINO. With the ability——

Senator FEINSTEIN. Has management improved?

Mr. D'AGOSTINO. The management, in this environment, we would only agree to move forward in this area is if a consortium of companies came together with USEC in order to——

Senator FEINSTEIN. We're aware of that, because we had a big discussion, and I know the Senator is well aware, and I am, too.

But the question is, has it made a difference?

Mr. D'AGOSTINO. Well, because we don't have the consortium in place, and we haven't started the——

Senator FEINSTEIN. It isn't in place?

Mr. D'AGOSTINO. Well, not to my knowledge. Until we have the——

Senator FEINSTEIN. Can you refresh my memory? Because we went over this——

Senator ALEXANDER. Well, it seems to me, Madam Chairman, isn't the idea that the research and development (R&D) project is ready to be demonstrated for 2 years. And we're going to run it for 2 years and see if it can operate at a level of efficiency the DOE regards as adequate, both in terms of its successes in operation and its ability to acquire materials?

Senator FEINSTEIN. We're funding it for 1 year.

Senator ALEXANDER. The transfer authority did 1 year and then we fund it for another. And that's the two $150 million that we were all caught up in with the late requests that we got last year.

But somebody has got to be in charge of the facility today.

Mr. D'AGOSTINO. Well, absolutely. USEC is in charge of the facility today.

Senator ALEXANDER. And who's going to be in charge of the 2-year test? Is that what's not put together yet?

Mr. D'AGOSTINO. Well, we have to, with great respect, we're waiting for the transfer authority. I mean, obviously, this is complicated. The Congress and the Administration have to do this together.

Senator ALEXANDER. Yes.

Mr. D'AGOSTINO. We don't have the transfer authority in place unless something happened recently that I'm not aware of. And so, therefore, moving forward on the exact mechanism is going to take a little bit of time.

Senator ALEXANDER. So you're saying first we have to provide the money and then you have to put together the team to figure out whether the project works?

Mr. D'AGOSTINO. Well, there are things happening in parallel. We won't do this first and then second and then third, because we don't have the time for that kind of an approach.

Senator FEINSTEIN. We didn't fund it with all those discussions?

Senator ALEXANDER. No, we didn't. And they're asking——

Senator FEINSTEIN. We made an offer to the House. The House turned it down.

Mr. D'AGOSTINO. That's correct.

Senator FEINSTEIN. So we didn't fund it.

Senator ALEXANDER. Right.

Mr. D'AGOSTINO. Right.

Senator ALEXANDER. They've asked for transfer authority to go with some other money to take care of what would have been year 1, and they put in the 2013 budget another $150 million for year 2.

And at the end of that, we're supposed to know if it works or it doesn't. And if it does, then it's up to the Department to recommend where we go from there.

Mr. D'AGOSTINO. That's right. But I would also propose for something like this, we would want, not just at the end but throughout the process, we, you know, on a periodic basis, frankly, whether it's quarterly or maybe even more frequently than that, we communicate officially back to the committee in this particular area, once we get started.

The planning work has started.

Senator FEINSTEIN. Well, have you stockpiled low-enriched uranium for tritium?

Mr. D'AGOSTINO. We are set. We have commitments for a number of years into the future, 5 years into the future. We're fine for tritium production for the next 5 years in the future.

We can do obligation exchanges to take care—what's known as flag swapping, taking material and making sure that it's domestically produced material that we can use it for national security purposes, that will take care for about another 5 more years.

But it's not just the tritium production piece that's important, an element of this. But from a tritium production standpoint over the next number of—a decade or so, as I've described, there are ways through this, but——

Senator FEINSTEIN. Without USEC, is that what you're saying?

Mr. D'AGOSTINO. I don't want to call it a particular company. I'm talking without an indigenous U.S. capability, which of course USEC right now is the only indigenous U.S. capability. It doesn't mean another company can't step in to do this.

Senator FEINSTEIN. So what is your prognosis? As you know, this keeps going back and forth and back and forth. Candidly, I don't know whether this facility can produce or not. And yet, you've requested $150 million.

Mr. D'AGOSTINO. I mean, the American Centrifuge Plant (ACP) project is one that the Department and the USEC organization have been working on. There's been some successes, and some areas where improvements are needed.

The key is, the concern that we have, of course, is making sure, since it is the only technology——

Senator FEINSTEIN. What are the successes?

Mr. D'AGOSTINO. What are the successes?

Senator FEINSTEIN. Yes.

Mr. D'AGOSTINO. I would say the success is the fact that we've operated and trained a number of centrifuges for periods of time. I don't have the exact lengths of time off the top of my head, but we can get that for you, for periods of time and successfully spun the centrifuges. And there have been some very significant challenges.

Senator FEINSTEIN. Well, the Iranians are doing that, too.

NUCLEAR SMUGGLING

I mean, in any event, let me go to an easier topic, nuclear smuggling.

NNSA plans to cut $171 million from efforts to install detection equipment at strategic international borders and shipping ports.

What's the reason for the cut and the reason for the "strategic pause"?

Mr. D'AGOSTINO. Well, there's multiple reasons, one of which I mentioned of having to do with challenges. When we look at the overall scope of work that has to happen in the nonproliferation arena, the most important part of the nonproliferation scope, the absolutely most important part, is securing the material at its location or removing the material from its location.

And, of course, we just can't do this ourselves. We have to get agreement by our partner countries in order to make this particular thing happen. And so the emphasis is placed on the Global Threat Reduction Initiative program, because we're absolutely deeply committed to achieving the President's charge to us.

With your support, we've been very successful to finish the first slice of dealing with the most vulnerable material.

The second line of defense program helps significantly in the transfer, illicit transferring of material around the world. And we've done a significant amount, and we will have, with this budget, more than 500 sites around the world complete a significant amount of this work.

The pause allows us to, in essence, evaluate whether or not just combinations of capabilities and programs from across the agency can be done in a different way.

We've been doing second line of defense in this manner now for, I would say, close to a decade in this approach. And it's normal when you're doing something in a consistent way for a long period of time and had successes in installation, and, frankly, we had some successes in finding material to evaluate. Do we keep doing things the same way out well out into the future or not?

We're going to focus on increasing our mobile detection efforts, because we recognize that when we established fixed-site radiation detectors, the obvious question is, is, well, you've just told the smugglers that this is a place where you've got radiation detectors, they're just not going to go there. They're going to go somewhere else or they're going to go around.

So an element of the pause is to put in place mobile detection capability to ensure that the whole border areas are covered.

And so it's a confluence of budget and the like——

Senator FEINSTEIN. You talked about buildings. You had a goal of securing 8,500 buildings by 2025, and that slipped by 10 years to 2035. Is that for the same reason or that you just can't do it?

Mr. D'AGOSTINO. Well, it's somewhat of the same reason, but it's also the fact that to make sure that the resource, the limited resources, we have are applied on the highest risk activities, which is not just securing some of the building.

The numbers you mentioned, Ma'am, are dealing with radiological materials in many cases, which are different than nuclear materials. The nuclear material is fissionable materials that can turn into a mushroom cloud. The radiological materials are hazardous, but in a radiological dirty device. So they can cause some contamination spread, which would be expensive to clean up, but it's different than the mushroom cloud problem.

So given a limited, finite set of dollars, the preponderance of our resources should be focused on dealing with the improvised nuclear device or nuclear materials, not just radiological materials.

Senator FEINSTEIN. Well, Mr. D'Agostino, you certainly have a difficult portfolio.

Mr. D'AGOSTINO. Yes, Ma'am, I'd agree.

Senator FEINSTEIN. I don't know why any nation would want to go nuclear.

Senator.

Senator ALEXANDER. Yes, Ma'am. I've got three questions, if I may.

NUCLEAR WEAPONS MODERNIZATION

One is the United States DOD and the President have said in their so-called 1251 figure that we need $372 billion more for nuclear weapons modernization than your budget recommends, even though your budget recommends $363 billion more than we spent in the current year—than we're spending in the current year.

What can you say to the DOD and to the group of defense experts who said we need $372 billion more? Were they wrong? Have they changed their mind? Or do you have some other way to meet what they say is important for the Nation's defense?

And I'm assuming most of the questions about it would come from your decision to delay the additional facilities for plutonium in New Mexico, because that's where about $300 of the $373 billion

comes from. In other words, how are you going to do the work in plutonium that they say needs to be done to adequately secure the Nation's defense?

Mr. D'AGOSTINO. Okay, if I could start off with saying the DOD and the Nuclear Weapons Council support the President's budget, support this program.

All of our organizations are larger organizations, so there may be folks that aren't happy with the fact that we have stepped off of——

Senator ALEXANDER. So they've adjusted their view, they have amended the 1251 number, those people you just mentioned? The DOD, the——

Mr. D'AGOSTINO. I don't know about the whole Department. I know about the Under Secretaries and the four-star officers on the Nuclear Weapons Council. Those are——

Senator ALEXANDER. Well, who provided us with the 1251 number? That was part of a review?

Mr. D'AGOSTINO. That was both the DOE and the DOD that provided that.

Senator ALEXANDER. Now have the Departments amended that number?

Mr. D'AGOSTINO. We will be. And this is the study we're doing with the DOD to make sure that our out-year budgets, the fiscal year 2014 through 2022, 2023 budgets, because we do owe the Congress a plan.

Senator ALEXANDER. So the answer is yes, you're going to amend the 1251 budget, 1251 number. Then how are you going to do what needs to be done with plutonium with at the lower estimate level and with the deferral of the facility?

Mr. D'AGOSTINO. Sure. One element of how we're going to do this is by doing more work inside the radiological building that's already built.

Senator ALEXANDER. Which you described.

Mr. D'AGOSTINO. Which I described earlier. And that is an element of the resources that Madam Chairman was asking earlier, you know, was this a waste.

Senator ALEXANDER. So you do more work in an existing building. Are you going to produce, are you going to refurbish fewer pits or manufacture fewer pits?

Mr. D'AGOSTINO. We're going to take care and we're going to do the surveillance as we always do on the plutonium pits that we have. We have a PF facility called PF4 that exists, and we're going to take advantage of that.

That was always the case. What we've done in the last year, the piece I hadn't described adequately, was—the big thing that changed in the last year as well, aside from this decision to be able to do more work in the existing radiologic facility, is we've reduced the amount of material that Los Alamos was keeping in its plutonium vault.

In essence, the laboratory did a fantastic job in cleaning out, if you will—I use that term "cleaning out"; it's not a technical term—but making sure that they only have material in the vault that they need in order to do their job. And the material that they don't need is appropriately dispositioned, whether it goes to the Waste

Isolation Pilot Plant (WIPP) facility also in New Mexico or is put in a different area that the vault space is—the pressure on having a large vault, which CMR was going to give us, the nuclear facility was going to give us, the pressure on having a large vault right away has been taken—the notch has been taken down.

But because we can use the device assembly facility for staging in Nevada, and because we plan on using the Superblock Facility at Lawrence Livermore for very small amounts of experimental work in the Superblock facility.

So it's what I described earlier, which is this idea of operating in an integrated and interdependent——

Senator ALEXANDER. Well, just to boil it down, are you going to be processing fewer pits than you otherwise would have, otherwise were planning?

Mr. D'AGOSTINO. No, we will process the same amount of pits, which processing means doing surveillance on them, taking them apart, looking at them, making sure that they're okay.

Senator ALEXANDER. What about manufacturing?

Mr. D'AGOSTINO. Manufacturing pits, we have the capability to manufacture about 10 pits per year now. With a few small upgrades, we can move that number up to 20 pits per year.

I believe that depending on the outcome of the W78 study, and if we maintain kind of this 10- to 20-pit per year capacity and working with the Defense Department on the overall size of the stockpile that that will take care of the need, the operational need to stockpile.

Senator ALEXANDER. So manufacturing 10 or 20 and then otherwise processing an additional number of pits.

Mr. D'AGOSTINO. Processing for surveillance, to do the surveillance work.

UNITED STATES ENRICHMENT CORPORATION

Senator ALEXANDER. Right. Let me shift quickly to my other two.

Just to summarize the chairman's questions about USEC, I mean, basically, this centrifuge project is completed to the point where we need to know whether it works or not. Isn't that the argument?

And the request is for a $150 million in the current year and next year to do an R&D deployment and assess whether it's ready to go. Isn't that basically right?

Mr. D'AGOSTINO. It's basically right, but it includes the, essentially, I'll call it the purchase—this R&D program to buy and train a set, a small production grouping of these centrifuges, and make sure that they work together.

Senator ALEXANDER. Yes, enough of them to make a judgment about whether it's been successful or not, this project.

Mr. D'AGOSTINO. And then to ensure that the taxpayer is protected in this area, that that intellectual property comes back to the department because——

Senator ALEXANDER. Yes, we understand that.

But the point is to find out, at the end of 2 years, you should be able to say, unfortunately, this project on which we have spent billions of dollars doesn't work well enough to go forward with it,

or, fortunately, it does and this is what we propose to do with it at this point.

Is that——

Mr. D'AGOSTINO. Right.

Senator ALEXANDER. Is that basically right?

Mr. D'AGOSTINO. That's about right, Sir.

Senator ALEXANDER. And then, now, if I've got this right, you don't have the budget for cleanup, environmental cleanup, but you've got the management responsibility. Is that right?

Mr. D'AGOSTINO. Well, the Environmental Management organization works for me. I'm keeping the Environmental Management and the NNSA budgets separate. There's two separate accounts, because it's very important—we have a significant amount of environmental management work.

So, yes, the Environmental Management budget is part of my portfolio.

RADIOLOGICAL CLEANUP

Senator ALEXANDER. It comes to you.

Well, that's very important and another part, Madam Chairman, of making good use of the taxpayer dollars. Shrewd decisions and careful priorities in cleanup could make a huge difference not just in the safety of Americans, but in how wisely we spend the money, for example, in the case of the Y–12 facility.

I know that you're making some decisions to get certain buildings out of the security compound to reduce security costs and to permit us to clean them up more rapidly. You're finishing up, I know at least in the Oakridge area, a huge amount of radiological cleanup. And we've talked about the importance of beginning to move ahead with a plan to deal with the mercury problem in the Oakridge area, which is a very large problem.

So I would like to receive assurances from you that you will continue to focus on finishing the radiological cleanup and be flexible in terms of spending the dollars to move as rapidly ahead so we can, A, develop a plan, and, B, get started on the long-term mercury cleanup.

Mr. D'AGOSTINO. Senator, I'd be glad to do that. The U–233 project I think is the radiological project that you talked about.

Senator ALEXANDER. Yes.

Mr. D'AGOSTINO. And that's a real demonstration of how two organizations can and, frankly, should work together. It was as the result of pushing—or Bill Brinkman and I—Bill Brinkman runs the Office of Science—and I have the other piece of working together and saying we have to finish this job. Fortunately, I have a colleague like Bill in this area, and we were able to do it with his help.

Senator ALEXANDER. Madam Chairman, I have no other questions.

AMERICAN CENTRIFUGE PLANT

Senator FEINSTEIN. Okay. I'm afraid I do.

Let's go back to last June at USEC. What blew up?

Mr. D'AGOSTINO. Last June at USEC. I don't know, Madam Chairman. I will have to check. I wasn't given responsibility at that particular point.

Senator FEINSTEIN. Well, didn't the centrifuges blow up?

Mr. D'AGOSTINO. I don't know if I would use the term "blow up". We had, I think, as I understand it, there were some issues with the centrifuges spinning in a way that was not conducive to their operation at all.

Senator FEINSTEIN. Sorry.

Welcome to the United States Government.

Mr. D'AGOSTINO. Senator, if when you have somebody that has my job called the Nuclear Security Administration, I don't usually use the words "blow up" too often. So I'm aware that sometimes I can be—that term could get—if I use the term "blow up"——

Senator FEINSTEIN. Let me put it in another way.

Mr. D'AGOSTINO. Okay.

Senator FEINSTEIN. Were they all incapacitated?

Mr. D'AGOSTINO. Were they all incapacitated?

Senator FEINSTEIN. The centrifuges.

Mr. D'AGOSTINO. We'll have to take that for the record. I don't know.

Senator FEINSTEIN. Because it seems to me, before we fund something, we ought to know where things are.

Mr. D'AGOSTINO. Absolutely. I'd glad to come up, once I get the data, with my colleagues from the nuclear energy organization to explain where things are with the ACP, absolutely.

Senator FEINSTEIN. Okay. I would appreciate that very much, because, you know, we went through this. All the vibrations that I get from the commentary is we're right where we were. And yet, has the plant been operating?

Mr. D'AGOSTINO. Well, the plant has—I mean, pieces of the plant had been operating. I couldn't tell you which pieces are. USEC continues to do work on the ACP project to tackle the problem.

Senator FEINSTEIN. Well, I'd like to know what's working and what isn't working.

Mr. D'AGOSTINO. Sure. Absolutely.

Senator FEINSTEIN. Before we fund it. I'm really serious.

Mr. D'AGOSTINO. Absolutely. I think that's a fair question.

Senator ALEXANDER. Madam Chairman, if I could add, I mean, isn't the question, is the project ready to receive funding for a 2-year demonstration about whether it works or not. I mean, isn't that what we're talking about? That was the whole project purpose of the 2-year project, was to see whether all this research and effort over the last several years——

Senator FEINSTEIN. Candidly, I thought it began. Now what I'm finding out is that it may not have. I don't know whether the plant went totally down, whether the centrifuges went totally down last June, but there certainly was a big interruption.

I mean, if it can't operate, why fund it? If it doesn't operate well, why fund it when, as I understand it, there are other methods of handling the problem?

Senator ALEXANDER. Well, it could be, Madam Chairman, that—I mean, that's certainly a logical—we got a late request for 2 years of $150 million that surprised us, correct?

Senator FEINSTEIN. Correct.

Senator ALEXANDER. And we weren't—it came late in the process, and we tried to help but could not. Because we couldn't fund it, I suppose that produced—you couldn't move ahead, would be my guess. And I guess the question I'd like to know the answer to, too, is if are you ready for us to fund it? And if so, can you show us why?

Mr. D'AGOSTINO. And the answer would be, we believe that moving forward that we will be ready to show you why we can move forward with this deactivation and decommissioning (D&D) project. I don't have the data here to tell you exactly how many centrifuges are spinning, do we have all of the problems solved.

But the key for us is, USEC has been working on this project for a number of years, as we've discussed, that it is the best technology available, we believe the best approach to move forward on maintaining an indigenous U.S. capability. That's absolutely critical for not just the tritium reason, recognizing that's not a problem that we have to make tritium, make low-enriched uranium for tritium today. But it takes time in order to take us from a D&D project, a 2-year effort, to ultimately turning into a capability that the Nation can rely upon to take care of its needs out into the future.

And that's why we believe it's important to move forward with this D&D project, but if at some point in working with the Congress, it isn't something that the Congress is willing to do, we will have to explore other paths and take back the technology and use a different approach.

Senator FEINSTEIN. How many people are working there now and how is it funded?

Mr. D'AGOSTINO. I'll have to take that one for the record. I don't know the number of people that are working there now and the details of funding.

ADDITIONAL COMMITTEE QUESTIONS

Senator FEINSTEIN. All right. At this point, this is a serious concern. We had to grapple with it, and we tried to solve what was an immediate problem. We made the offer to the House; nothing happened.

I don't know how they're functioning. I don't know how they're paying for functioning. I don't know whether they are functioning and producing.

Mr. D'AGOSTINO. As I understand it——

Senator FEINSTEIN. I don't know how many people they employ. I heard it was a couple of thousand people. So it's kind of like a shadow, and I think we need to flesh it out.

Mr. D'AGOSTINO. Okay.

[The following questions were not asked at the hearing, but were submitted to the Department for response subsequent to the hearing:]

QUESTIONS SUBMITTED BY CHAIRMAN DIANNE FEINSTEIN

NATIONAL IGNITION FACILITY

Question. Mr. D'Agostino, the National Ignition Facility (NIF) is supposed to achieve ignition in September 2012. Some experts believe that NIF will not achieve ignition by September.

What are the prospects for ignition at NIF?

Answer. The timeframe for achieving ignition is impossible to predict with our current scientific understanding. Demonstrating fusion ignition has always been recognized to be a grand scientific challenge. The National Ignition Campaign (NIC), a multilaboratory, multiyear effort devoted to this pursuit, although producing many significant advances, has yet to accomplish three key milestones on the pathway to ignition. The milestone to create significant self-heating ("lighting the match") and the ignition milestone itself were recently delayed by 3 months each, and the milestone to exceed 5 million joules of fusion yield has been dropped from the campaign. The campaign is scheduled to end at the close of fiscal year 2012. It is imperative that the Stockpile Stewardship Program understands the physics underlying National Nuclear Security Administration's (NNSA) inability to achieve indirect-drive ignition thus far, and in doing so, assess the important fundamental issues relevant to ignition. Through the current campaign, the NIC team has gained insights into the challenges of developing the scientific, technological, and engineering basis for indirect-drive ignition and has regularly communicated the technical progress to the broader scientific communities through a number of reviews and refereed papers. An in-depth scientific understanding of the ignition target performance and its deviations from computer model predictions is critically important and will inform our subsequent decisions relative to the stockpile and further ignition attempts. Gaining that understanding while continuing to conduct important stockpile stewardship experiments that do not rely on an igniting capsule will be the priority for the next few years.

Question. Has NNSA developed a plan B to maximize the use of this $3.5 billion facility?

Answer. The experimental and simulation work required to resolve the issues remaining after fiscal year 2012 will be based on information derived from an evaluation of experimental results from the NIC. A process is well underway to stand up a Federal advisory committee to provide independent advice to NNSA regarding Stockpile Stewardship including the future conduct of the Inertial Confinement Fusion (ICF) program and ignition activities. Once established, NNSA will charge the Federal advisory committee or a subcommittee thereof with evaluating the progress on the NIF and providing advice on the evaluation, selection, and pursuit of alternative approaches to ignition. In the intervening time, the NNSA is continuing with plans to conduct the next NIC review in May using a combination of Federal staff members and outside scientists who served on the panel under former Under Secretary Koonin. Lawrence Livermore National Laboratory (LLNL) has also planned and invited national and international participants for a workshop on ignition science in May to be co-chaired by Dr. William Goldstein and Dr. Robert Rosner. NNSA will observe and will use the output of this workshop as one input for the report to the Congress due in November 2012 on impediments to ignition and the path forward. NNSA is soliciting ideas for alternative approaches to ignition, and for one of these, polar direct drive, has Q2 and Q4 fiscal year 2012 milestones to develop a proposed scientific plan.

Question. How much longer can NIF support stockpile stewardship work without ignition?

Answer. NNSA has invested in a balanced stewardship program that includes:

—underground nuclear test re-analysis;

—Advanced Simulation and Computing (ASC); and

—hydrodynamic, nuclear, and non-ignition high-energy-density physics experimental capabilities that when combined provide necessary tools to assess and certify the stockpile in the near term.

In the longer term, it is imperative that the Stockpile Stewardship Program understands the physics underlying the challenges encountered during the campaign to achieve indirect-drive ignition, and in doing so, assesses the fundamental issues relevant to ignition and whether they might impact our understanding of simulating high energy density plasmas. Ignition provides a critical capability needed to explore physical regimes of matter previously only achievable in a nuclear weapon. This capability will inform decisions that will be required for the future stockpile in the latter half of this decade. Achieving ignition on NIF would potentially open a larger range of design choices for increased safety and security, but more constrained design options do not negate stewardship. Emphasizing this point, in its April 2010 report to the Subcommittee on Energy and Water Development, Committee on Appropriations, U.S. Senate entitled "Nuclear Weapons—Actions Needed to Address Scientific and Technical Challenges and Management Weaknesses at the National Ignition Facility," the GAO concluded "failure to achieve ignition in fiscal year 2012 would not immediately impact NNSA's Stockpile Stewardship Program, but further delays could limit NNSA's options for maintaining the stockpile".

Question. Is it possible that NIF will never achieve ignition?

Answer. The timeframe for achieving ignition is impossible to predict with our current scientific understanding, and therefore, yes it is possible that in its current design, ignition may never be achieved. ICF Program participants, who have the principal purpose of providing experimental capabilities to validate NNSA's nuclear weapons codes in unprecedented regimes, are engaged in reconciling NIC experimental data with predictions; they also have begun planning for alternate approaches to ignition and preparing for enhanced utilization of ICF facilities for a wide array of SSP-relevant experimental activities. The Office of Defense Science through its Science Campaigns is developing programmatic plans for fiscal year 2013 and beyond under both ignition and non-ignition scenarios. Ignition, or understanding the obstacles to it, will remain a significant goal for NNSA. It supports multiple aims within the Predictive Capability Framework of the Stockpile Stewardship and Management Plan.

CONSTRUCTION PROJECTS

Question. Mr. D'Agostino, NNSA has just terminated or delayed 2 major construction projects—a plutonium facility at Los Alamos and a pit disassembly and conversion facility at Savannah River—after spending $1.5 billion only to conclude that it could use existing facilities to meet mission requirements. (NA–20 needs to provide PDCF info).

If these existing facilities were available, why did NNSA pursue the construction of these multibillion dollar facilities?

Answer. The use of existing facilities to meet mission requirements is a choice precipitated by the realities of the current fiscal environment. NNSA is fully committed to being responsible stewards of taxpayer dollars and doing our part in a time of fiscal austerity.

The decisions related to the deferral of the Chemistry and Metallurgy Research Replacement Nuclear Facility (CMRR–NF) are designed to ensure that NNSA is building a capabilities-based enterprise focused on needs and solutions while achieving President Obama's nuclear security objectives with the funding that is available. The decision to defer the construction of the CMRR–NF for at least 5 years was not an easy one, but it was assessed that, given budget constraints, other programs were a higher priority. Moreover, every effort has been made to mitigate the risks inherent in this decision, to include the use of existing infrastructure to provide for some of the capabilities originally planned for the CMRR–NF. Deferring a major construction project and opting to use current infrastructure carries an inherent programmatic risk that NNSA accepts in a time of constrained budgets. Use of existing infrastructure to provide analytical chemistry, materials characterization, and storage capabilities is not a final, nor preferred, solution but requires additional efforts to optimize equipment sets in both the newly constructed Radiological Laboratory/Utility/Office Building (RLUOB) and Plutonium Facility-4 (PF–4). While NNSA accepts the programmatic risk associated with deferral of the CMRR–NF, it will continue to mitigate the current operational risks associated with the Chemistry and Metallurgy Research facility by continuing orderly phase out of program activities targeted for completion in 2019.

Question. What is the return on the taxpayer investment after spending $1.5 billion on these projects?

Answer. Through fiscal year 2011 the CMRR project received approximately $640 million and in fiscal year 2012 another $200 million with the stipulation that no construction for the NF begin in fiscal year 2012. Of the funds appropriated through fiscal year 2012, approximately $363 million provided for the first two phases of the CMRR project, the construction of the Radiological Laboratory/Utility/Office Building and RLUOB Equipment Installation (REI). Through March 2012 approximately $362 million was spent on design of the third phase of the CMRR project, the CMRR–NF. A portion of the remaining fiscal year 2012 project funds provides for the close out of CMRR–NF design activities. Responsible close out of CMRR–NF design activities in fiscal year 2012 provides:

—Enhanced insight into the seismology at Los Alamos and its impacts to design of nuclear facilities.

—A design product that incorporates lessons learned during CMRR–NF design and the design, construction, and equipment installation of the RLUOB.

—Analysis of the programmatic and support equipment needed for enduring capabilities in analytical chemistry and materials characterization.

—Improved understanding of the safety equipment requirements of a Hazard Category 2 Nuclear Facility for any future Hazard Category 2 facilities.

Question. What has NNSA done to avoid these issues in the future?

Answer. NNSA plans and programs for new construction projects through its Planning, Programming, Budgeting and Execution (PPBE) activities, and relies on program-specific prioritization efforts like the Construction Working Group in Defense Programs. Large scale, unique nuclear projects like the plutonium facility at Los Alamos and the pit disassembly and conversion facility at Savannah River have inherent risks to scope, schedule, and cost. In the future, NNSA will continue to sharpen its risk analysis in order to inform sound resource decisions that support national program priorities. While NNSA works with the Congress, the Department of Defense, the Office of Management and Budget, and other stakeholders to align priorities with anticipated out-year funding profiles, unforeseen events may require NNSA to make difficult budget decisions.

Question. Domestic uranium enrichment technology is needed to produce tritium for nuclear weapons.

Given the uncertainty about the future of operations of domestic facilities and technologies, has NNSA stockpiled low-enriched uranium for tritium production?

Answer. The Tennessee Valley Authority (TVA) has the United States Enrichment Corporation (USEC) under contract to provide unobligated low-enriched uranium (LEU) to support tritium production through fiscal year 2015. TVA has confidence that these requirements can be met from USEC inventories, if the Paducah enrichment capability goes away. NNSA has identified approximately 140 metric tons uranium (MTU) of unobligated LEU that can be used for obligation exchanges to support tritium production through fiscal year 2020. This unobligated LEU is maintained by the MO_X program as backup to provide potential MO_X customers with assurance of delivery. In addition, DOE has approximately 5,000 MTU of unobligated uranium hexafluoride feed material (normal uranium) which could be enriched to LEU. The initial investment for such an approach would include enrichment costs of approximately $45 million per reload for each TVA 18-month fuel cycle, plus the costs of carrying that fuel in inventory until it is needed beginning in fiscal year 2021. NNSA has no other stockpiles of unobligated LEU that could support tritium production.

Question. Does NNSA have a contingency plan for tritium production if Paducah is shut down and the new gas centrifuge technology is not viable?

Answer. Plans for providing unobligated LEU for tritium production between now and fiscal year 2020 are described in the response to the previous question. Beyond fiscal year 2020, there are a number of options under evaluation. However, the contingency plan is to down blend highly enriched uranium (HEU) from future weapons dismantlements. High assay HEU is also needed to meet naval reactor program requirements and is essentially irreplaceable until a domestic HEU capability is built. There may also be intermediate assay HEU that could be accelerated for dismantlement to meet the fuel requirement for producing tritium in the timeline necessary.

Question. Have you determined whether there are cheaper alternatives to the American Centrifuge Project for low enriched uranium supplies?

Answer. Other than down blending HEU or stockpiling LEU from a special enrichment campaign at Paducah, we know of no alternative to ACP for providing unobligated enrichment services in the future, absent a new United States Government enrichment facility.

QUESTIONS SUBMITTED BY SENATOR PATTY MURRAY

MAJOR SHIFT IN SECOND LINE OF DEFENSE PROGRAM

Question. I understand the NNSA is undertaking a strategic review of the program. Which agencies are participating in the review? What is the schedule for the review?

Answer. The Second Line of Defense (SLD) program is in the process of a strategic review. The program has held multiple meetings with important stakeholders and partners with which it collaborates on a regular basis. SLD coordinates its prioritization and deployment activities through the State Department and its Embassies; carries out multiple joint initiatives involving partner countries, including regional exercises with Department of Defense (DOD) and Department of Homeland Security (DHS); and is responsible for a large component of the foreign transit and foreign departure element of the Interagency Global Nuclear Detection Architecture. SLD also participates in the National Security Council (NSC)-led and Department of State (DOS) coordinated effort to establish Counter Nuclear Counter-Smuggling Teams. SLD similarly collaborates with international partners such as the European Commission's Joint Research Centre (JRC) and the International Atomic Energy Agency (IAEA) on related efforts, and is taking into account their capabilities

as part of its review of how to most effectively deploy SLD programs, including mobile detection, to meet the threat of nuclear trafficking.

The schedule for the review is closely linked to the fiscal year 2014 budget development cycle to provide an overall strategic plan for consideration in light of the current fiscal environment. Throughout this deliberative process, SLD is engaging interagency partners with which it has traditionally collaborated. This includes the Departments of Defense, State, and Homeland Security, as well as interagency coordinating groups such as the Interagency Working Group at the Department of State and the Counter Nuclear Smuggling Initiatives led by the National Security Council.

Question. What concerns me is what happens in the meantime?

Answer. It's not clear to me how you maintain existing capabilities, retain existing expert personnel, sustain currently deployed detection systems, and meet our international commitments to priority "source" nations by cutting funding for this program by 65 percent while you undertake a strategic review.

Question. What can you do with the $93 million you've requested for the SLD program? Are you going to deploy any new detection systems in priority "source" countries?

Answer. In fiscal year 2013, the SLD program will focus on a strategic review intended to identify and prioritize those elements of SLD that should continue. While this strategic review is underway, SLD will focus on the highest priority deployments. This will still allow for a number of new starts at locations in the highest priority Core countries, including some fixed radiation portal monitor deployments, the next segment of the national communications system in Russia, and the provision of mobile detection equipment to countries such as Belarus, Czech Republic, Jordan, Moldova, Poland, Russia, and Ukraine. The remaining funding will be used to ensure adequate sustainability support is available to assist those partner countries in process of assuming the maintenance, training, and management responsibilities associated with the radiation detection systems.

Question. How will you meet our existing international commitments to these and other nations?

Answer. The SLD program will not be able to meet all prior commitments for new installations in fiscal year 2013 as a result of the reduced budget and the associated strategic pause. SLD is currently conducting outreach to international partner countries to inform them of the implications of the strategic pause. A major element of the outreach is to express SLD's continued support for the project and our commitment to sustainability activities. We are also actively encouraging partners whose SLD work scope in fiscal year 2013 is reduced or terminated to continue operating previously deployed systems. As the strategic review is refined, we will reach out to partner countries to inform them of the results of the review.

Question. How will you be able to maintain the hundreds of millions of dollars in detection systems that have already been deployed around the world?

Answer. SLD is committed to a robust sustainability program with partner countries and will strive to maintain that standard under the new funding profile. SLD has a multi-faceted 3-year support and long-term engagement strategy that we believe is a solid formula for building partner country capabilities to sustain SLD systems and for ensuring the long-term operation of such systems.

SLD seeks to provide at least 3 years of maintenance and training support to each partner country following the acceptance of a new Megaport or Core site. We also seek continued technical engagement thereafter to ensure that the value of SLD's investment is properly sustained. SLD conducts quarterly assessments of local maintenance provider performance to ensure that local maintenance providers are properly maintaining SLD systems. In addition, SLD conducts quarterly assessments of the partner countries' capabilities to sustain the systems in the areas of operations and management, training, and maintenance. SLD will fund the highest-priority sustainability activities, and will continue to engage with partner countries and will identify opportunities for improvement through continued analysis of daily operational reports from deployed monitors, worldwide reporting to the SLD technical support Help Desk, and regular review of local maintenance provider reporting, refresher training, and assurance visits. This information, in combination with our consistent engagement with partner countries, will ensure the sustainability of installed SLD systems and will offer the opportunity to address any gaps. As a result of the prioritization of sustainability activities, other activities such as exercises, refresher training, and regulations development might not receive full funding.

Question. And how do you intend to implement the recommendations coming from the strategic review?

Answer. You've got capabilities and teams of experts at labs like Pacific Northwest National Laboratory and elsewhere who have been working hard to deploy and maintain systems to keep nuclear material from ever reaching our shores.

Question. After reducing the budget by 65 percent, are you sure those people and those assets are still going to be available once your strategic review is complete?

Answer. The current and future success of the SLD Program is largely dependent on the contributions of the technical experts at the National Laboratories, including those at the Pacific Northwest National Laboratory (PNNL). Accordingly, SLD intends to maintain a core capability of these technical experts. However, it is well understood that the reduction in funding and resulting reduction in workscope will necessitate a decrease in the present number of technical staff supporting this program effort. It is possible that this loss will impact the program's ability to resume a high level of workscope implementation immediately should the results of the review call for that. The strategic planning process and outyear budget development will take this into account. In the meantime, SLD is working with its national laboratory colleagues to retain key expertise throughout the strategic pause.

ENVIRONMENTAL MANAGEMENT—TECHNOLOGY DEVELOPMENT AND DEPLOYMENT

Question. Under Secretary D'Agostino, as you may know, the Pacific Northwest National Laboratory has historically provided scientific and technical support to the Hanford Site in areas such as tank waste processing and soil and groundwater monitoring. Over the past few years, the funding for Technology Development and Demonstration and within each site that supports these tasks has been on a downward trend.

If adequate funding is not provided to maintain the institutional scientific and technical knowledge, subsequent staff reductions will result in these capabilities being lost forever—even as we enter a period in which addressing technical challenges underlying cleanup is key to ensuring successful outcomes.

What is the Department of Energy's (DOE) Environmental Management (EM) office doing to address this issue and to ensure that EM has the technical and scientific capabilities it will need to address cleanup challenges moving forward?

Answer. In the 2012 budget, EM requested $32 million for the Technology Development and Deployment program. The Congress provided $10 million. The 2013 budget requests $20 million for the program. EM's focus is to maintain a strategic applied research and technology development program that supports the effective, efficient, safe, and compliant completion of cleanup at the DOE sites. To accomplish this, EM identifies its highest priority technical challenges involving, among other things, soil and groundwater remediation, tank waste processing, nuclear materials disposition, and facility deactivation and decommissioning. Then the EM program interacts with the national laboratories and various universities to address those challenges. We look forward to working with the laboratories to address EM's technical challenges.

NATIONAL NUCLEAR SECURITY ADMINISTRATION WORKFORCE PLANNING

Question. Have you done a comprehensive assessment of the appropriate staffing levels and skills needed to oversee the nuclear security enterprise?

Answer. The National Nuclear Security Administration (NNSA) is currently conducting a Federal Workforce Analysis to enhance NNSA's human capital model by identifying future staffing levels and organizational core competencies, and implementing a competency model, and integrating legacy human capital information with project information. This will assist NNSA in organizing and staffing optimally, including the proper skill mix, to meet future mission requirements.

QUESTIONS SUBMITTED BY SENATOR LAMAR ALEXANDER

PIT PRODUCTION

Question. The National Nuclear Security Administration (NNSA) has decided it will defer for at least 5 years construction of the Chemistry and Metallurgy Research Replacement Facility (CMRR).

NNSA's Stockpile Stewardship and Management Plan issued in April 2011 stated ". . . the U.S. must maintain a basic set of production, scientific and engineering capabilities. This minimum capability-based physical infrastructure will have to be responsive to changing world demands and have the inherent capacity to produce up to 80 of the most work-intensive weapons per year while sustaining the remaining stockpile".

Has the requirement for a capacity of producing up to 80 pits per year changed?

Answer. There were a number of factors the Department of Defense and NNSA considered that informed the decision to seek a pit production capability of up to 80 newly manufactured pits per year. First, at an unclassified level, the best estimate for minimum pit lifetimes in the U.S. stockpile is 85–100 years, and most pits are nearing half that age. There are many uncertainties with regard to the pit lifetime estimates and performance of aged pits (the details of which are classified) which all support the prudent maintenance of a capability to manufacture pits to ensure against technological surprise. Furthermore, adding modern safety and surety capabilities to the majority of the enduring stockpile will require capabilities to remanufacture and rework pits and pit components. These factors have not changed, and therefore, a pit production rate of up to 80 pits per year is currently assessed to be a prudent, long-term capability to achieve. However, NNSA is reviewing combinations of reuse of existing pits in addition to the remanufacture of existing pit designs to support planned life extension programs and determine the most efficient use of resources and production capabilities and capacities.

Question. NNSA says it can develop the capability to produce 20–30 pits per year without CMRR. How much will this cost over the next 5 years? Please delineate which facilities will do the work in the absence of CMRR, and the associated costs.

Answer. The CMRR project involved three phases:

—the construction of the Radiological Laboratory/Utility/Office Building for small sample analytical chemistry,

—the RLUOB Equipment Installation, and

—the CMRR–NF for larger sample analytical chemistry, material characterization, and vault space.

Construction of the radiological facility is complete and the nuclear facility construction is deferred. As a result, in the interim, options are being evaluated to increase the analytical chemistry work in the radiological facility; additional material characterization to include sample preparation in PF–4; performing some material characterization at Lawrence Livermore National Laboratory; and reducing the amount of unused material in the existing PF–4 vault. These actions are targeted at supporting a production rate of 30 pits per year. The feasibility of these actions are currently being evaluated, including cost estimates.

Question. NNSA plans to reuse or refurbish existing plutonium pits, which would lessen the need for manufacturing. Are you confident this will be feasible?

Answer. Plans to reuse or refurbish existing plutonium pits would reduce the short-term need for manufacturing, but do not address the long-term need. The best estimate for minimum pit lifetimes in the U.S. stockpile is 85–100 years, and most pits are nearing half that age. There are also many uncertainties with regard to the pit lifetime estimates and performance of aged pits (the details of which are classified) which all support the prudent maintenance of a capability to manufacture pits to ensure against technological surprise. Furthermore, adding modern safety and surety capabilities to the majority of the enduring stockpile will require capabilities to remanufacture and rework pits and pit components.

NNSA has a strong record of reusing and refurbishing pits as part of major nuclear explosive package operations and life extension programs (LEP) over the last two decades. Examples include the W87 Alteration (Alt) 342, the B61 Alt 357, and most recently the ongoing W76 LEP. In addition, the baseline for the B61 LEP, scheduled for a first production unit in fiscal year 2019, is relying on a pit reuse strategy. NNSA is also pursuing the ability to certify the use of insensitive high explosives with pits designed for conventional high explosives, which would increase the re-usable pit inventory. Science, Technology, and Engineering tools and capabilities investments are being made to enable this certification.

Our interim capability of 20–30 pits per year will support our expectation during this interim time period to rely on reuse and refurbishment of existing pits. We are confident that this is feasible. Therefore, an expanded capability to produce 80 pits per year is associated with the remanufacture of existing stockpile designs or the replacement option, which produces new pits based on previously tested designs. With the CMRR deferment choice made following the adoption of the Budget Control Act of 2011, an inability to expand to 80 pits annually over the short term does represent an acceptable risk.

Question. Which planned life extension programs are expected to require new pit production?

Answer. NNSA has existing life extension programs for the W76 and the B61. The W76–1 and B61–12 do not require new pit production. The W78 and W88 are undergoing a conceptual study for life extension options. Options for both reuse of existing pits and remanufacture of existing pit designs are being evaluated. No decisions have been made.

LIFE EXTENSION PROGRAMS

Question. The life extension program (LEP) for the W76 nuclear warhead is well underway. This summer, the B61 LEP is expected to begin and may delay completion of the W76 LEP.

Please describe, in broad terms, the relative importance of the B61 and W76 to our strategic deterrent.

Answer. The B61 and W76 support separate but very important elements of the U.S. nuclear deterrent Triad. B61 bomb variants are actively deployed in the United States and abroad. The B61 strategic variants are an integral part of the air delivered deterrent supporting the bomber leg of the Triad. The non-strategic variants, along with the U.S. and North Atlantic Treaty Organization (NATO) dual capable aircraft, are the cornerstone of the U.S. commitment to extended deterrence. The W76 warheads are deployed on the submarine launched ballistic missiles as part of the sea-based strategic nuclear deterrent, which is the most survivable leg of the Triad. Additionally, with the reductions in warheads and launchers under the New Strategic Arms Reduction Treaty (New START), the W76 will comprise a majority of the Nation's nuclear strategic force. Both the B61 and W76 provide the U.S. with unique capabilities. The two LEPs will enable the U.S. to continue to rely on these capabilities. The NNSA is working closely with the Department of Defense to balance resources on both programs to ensure requirements are met.

Question. Currently, what is the projected unit cost for a refurbished B61 and how does this compare to the unit cost of the W76?

Answer. The B61 LEP is finalizing and validating costs as part of the Nuclear Weapons Council Phase 6.3 authorization. These costs are not available today but will be reported to the Congress in July 2012 as part of the report on the Phase 6.2A design definition and cost study required by Public Law 112–74. Upon submittal of the report, a comparison to the W76 LEP unit cost can be provided.

Question. What percentage of the B61 LEP costs will our NATO allies pay?

Answer. All design, qualification, and production costs associated with the B61 LEP nuclear bomb components, with the exception of the USAF procured tail kit assembly, are funded by NNSA in accordance with Atomic Energy Act and applicable joint USAF and NNSA memorandum of agreements. The USAF and NATO allies are responsible for aircraft integration costs. Additional questions on NATO responsibilities associated with the U.S. extended deterrent should be referred to the Office of Secretary of Defense.

Question. A stated goal for LEPs is to increase the safety, security, and use control (surety) of U.S. nuclear weapons. Please describe in broad terms the surety improvements in the W76 and B61 LEPs.

Answer. The W76 and B61 LEPs have and will, respectively, incorporate design features to increase the safety, security, and use control of the nuclear explosive package. A major goal for the W76 LEP was to improve the surety and safety of the Ultimate User Package delivered by NNSA to the Department of Defense. This goal was accomplished by incorporating a modern safety and surety architecture known as Enhanced Nuclear Detonation Safety (ENDS) into the W76 LEP hardware including new electrical stronglinks, thermal weaklinks and improved exclusion region barriers which greatly enhance safety in abnormal electrical and thermal environments. The existing B61 bomb variants already have some of the most advanced safety, security, and use control features in the stockpile including a modern ENDS and an insensitive high explosives design. However, these features are old and are reaching the end of their service life. The B61 life extension program will replace these capabilities and incorporate improvements including enhancements to the stronglinks and exclusion region barriers in the safety theme without significant impact to cost or schedule.

FISSILE MATERIALS DISPOSITION

Question. The budget includes $569 million for continued construction and initial testing and evaluation of the Mixed Oxide Fuel (MO_X) Fabrication Facility. NNSA estimates the MO_X facility will cost nearly $500 million a year to operate, compared to earlier estimates of $185–356 million. Why is the estimated annual cost to operate so much higher than earlier estimates?

Answer. As the project advances, we are now in a better position to identify and project which elements need to be reflected in a comprehensive estimate of operating costs for the MO_X facility. Therefore, the current total life cycle costs include capital equipment procurements, a larger facility staff, and increased Nuclear Regulatory Commission costs, which were not included in any of the previous estimates. In addition, the previous total life cycle cost estimate did not include government

furnished services such as electricity, waste disposal services, and SRS emergency services, which are now included in the estimate.

Furthermore, the current estimate is expressed in 2011 dollars, while the previous estimate was expressed in 2005 dollars. These estimates will continue to be preliminary until the negotiations for the contract, option for operating the MO_X facility, have been completed. In the meantime, we will continue to update and refine these estimates.

Question. NNSA has cancelled plans for a new Pit Disassembly & Conversion Facility (PDCF) that would have produced the plutonium feedstock for the MO_X facility, and will instead produce the feedstock from existing facilities. Are you confident you have the facilities you need to generate plutonium feedstock for MO_X Fuel Fabrication Facility (MFFF) without the PDCF facility? Please explain which facilities will be used, the extent to which refurbishment will be required, and the costs.

Answer. NNSA examined a number of alternatives for the pit disassembly and conversion capability. The examination considered resources across the Savannah River Site (SRS), including K-Reactor, H-Canyon, the MFFF, as well as possible additional work at the Los Alamos National Laboratory (LANL). In January 2012, the Department issued an Amended Notice of Intent that identified a preferred alternative, which will consider a combination of facilities at TA–55 at LANL, H-Canyon/HB Line, and MFFF at SRS.

The Department is confident that the preferred alternative for the pit disassembly and conversion capability would meet the long term, steady-state plutonium disposition feedstock requirements by utilizing LANL to provide the majority of plutonium metal, H-Canyon to process certain categories of plutonium pits, and the MO_X facility to convert the plutonium metal to oxide. A more detailed plan is being prepared by the Department, and will be made available to the committee upon completion.

In addition, the Department has already identified nearly 10 MT of early feedstock for the MO_X facility, including:

—2 MT from ARIES at LANL;

—3.7 MT to be processed at H-Canyon at SRS; and

—4.1 MT of plutonium currently stored at SRS.

Question. Concerns have been raised about whether you will have customers for the MO_X fuel that will eventually be produced by the Mixed Oxide Fuel Fabrication Facility. How many firm MO_X fuel customers have been identified? Is NNSA confident there will be sufficient customers for MO_X fuel?

Answer. The Tennessee Valley Authority (TVA) is currently exploring technical and regulatory requirements associated with irradiation of MO_X fuel in five reactors, pursuant to an interagency agreement that was signed in 2010. The current schedule with TVA is to execute a fuel supply agreement for MO_X fuel in early 2013, after NNSA completes a Supplemental Environmental Impact Statement, in which TVA is a cooperating agency.

In addition, NNSA is consulting with various fuel vendors regarding the possibility of them marketing MO_X fuel to their utility customers. NNSA also continues to develop strategies to attract other utility customers.

Question. The contractor building the MO_X facility has difficulty retaining nuclear workers. What measures, if any, has NNSA and its contractors put in place to retain the skilled workforce needed for constructing and operating the MO_X fuel facility?

Answer. The Department is working with MO_X Services to mitigate high employee turnover and is currently developing a retention plan to ensure that its investment in the trained staff is fully capitalized. In addition to the retention plan, MO_X Services provides employees with quality-of-life benefits, such as ensuring a safe workplace with 8.5 million work hours without a lost time accident, and career development incentives, such as an MBA program with on-site classes through the University of South Carolina.

MAJOR SHIFT IN SECOND LINE OF DEFENSE PROGRAM

Question. What does this "strategic pause" mean, how will NNSA assess the path forward for this program, what changes are being considered, and have the specific goals of the program changed?

Answer. After an administration review of DNN priorities, funding was shifted in fiscal year 2013 to focus the Second Line of Defense (SLD) on a strategic review intended to identify and prioritize those elements of SLD that should continue. While this strategic review is underway, SLD will focus on the highest priority deployments. This will still allow for a number of new starts at locations in the highest priority Core countries, including some fixed radiation portal monitor deployments, the next segment of the national communications system in Russia, and the provi-

sion of mobile detection equipment to countries such as Belarus, Czech Republic, Jordan, Moldova, Poland, Russia, and Ukraine. In fiscal year 2013, the SLD Core Program plans to complete installation of radiation detection equipment at an additional 35 high-priority foreign sites. The program has no Megaports implementation work planned in fiscal year 2013.

The strategic review of the program will achieve four primary objectives. First, the review is intended to assess the effectiveness of the program's deployments relative to their cost and other interdiction methods. Second, it is intended to produce program and country specific strategies that capitalize on SLD lessons learned and available detection technologies and applications. Third, the review will also update our performance metrics that are closely linked to performance data collected by maintenance providers, help desk requests, and other sources of information to continually improve our understanding of system performance. Finally, the review will also consider the impacts of a new Eurasian Customs Union, currently composed of Russia, Belarus, Kazakhstan, and soon Kyrgyzstan. The Customs Union resulted in a loss of customs presence on the affected borders, such as the border between Russia and Kazakhstan, which means there are reduced opportunities to scan people and cargo in those countries. This review is part of a broader assessment strategy.

NUCLEAR EXPORT CONTROLS

Question. U.S. suppliers of nuclear commodities and services have voiced frustration that the U.S. nuclear export control system imposes major competitive disadvantages on U.S. suppliers competing with State-owned international rivals. DOE has jurisdiction over nuclear technology exports under 10 CFR 810, which legal experts have found is more restrictive, complex and time-consuming than that of foreign nuclear supplier nations. Delays in the licensing of exports can amount to a significant commercial disadvantage for suppliers that have slower regulators. NNSA often takes more than 1 year to process specific authorizations for commercial nuclear transfers under 10 CFR 810.

How will NNSA improve the efficiency of the 10 CFR 810 process so that U.S. exporters are on a level playing field with their foreign competitors whose governments process similar export licenses in a few months, rather than more than a year?

Answer. We know that we need to improve the efficiency of the 10 CFR part 810 process and we are addressing this in a couple of key ways. First, we are in the process of updating the current 10 CFR 810 regulations to address industry's concerns. Second, we intend to examine our internal review and approval process to ensure maximum efficiency. In carrying out the review process, we have to balance U.S. nonproliferation principles and obligations with commercial interests.

NUCLEAR EXPORT CONTROLS

Question. The National Nuclear Security Administration (NNSA) has recently proposed a significant revision to 10 CFR 810. Rather than ending restricted treatment of countries that have concluded a nuclear trade agreement with the United States, the proposed rule would double the number of countries requiring a specific authorization. Rather than focus the regulation on sensitive technologies, consistent with the Administration's Export Control Reform Initiative, the proposed rule would extend its reach to new technologies that pose little or no proliferation risk. The proposed changes would dramatically increase the number of Part 810 applications and the delays in processing them. However, the Administration's budget request shows no evidence that resources have been requested to process the significant number of new authorizations that will be required or to make the process of issuing authorizations more efficient.

How will NNSA ensure that any changes to the 10 CFR 810 regulation do not result in additional delays that negatively impact U.S. industry?

Answer. We have received helpful comments and suggestions from industry and other stakeholders on the revision of the 10 CFR 810 regulation through the public comment period and Federal register process. We are aware of concerns articulated by some industry groups that the revised regulation would increase the number of countries for which U.S. nuclear industry would need specific authorization from the Secretary of Energy to engage. We are also aware of concerns articulated by these same groups that the proposed rule expands the scope of technologies that would require specific authorizations for non-sensitive technologies. We are reviewing all comments received, and we plan to re-release the revised regulation for public comment through the Federal register process. This will allow U.S. industry to voice any specific concerns it may have. In addition to updating the 810 regulation, we

are exploring ways to automate certain aspects of the process to allow applicants to more easily track the progress of their requests.

Question. Has NNSA considered the additional resources required to administer the proposed 10 CFR 810 revision? If so, how long should a U.S. exporter expect to wait for a specific authorization under the proposed rule?

Answer. As with all updates to regulations, there will be an adjustment period during which the Department will need to work more closely with U.S. industry to help clarify the implementation and application of the revised rule. Once we are through that period, we believe that the U.S. exports will see more efficient service from the Department. We do not at this time anticipate that additional staff will be needed to support the revised process.

ADMINISTRATIVE COSTS

Question. NNSA's budget includes $411.3 million for its Federal workforce. In 2005, NNSA had 1,634 total Federal employees overseeing the NNSA. Today the number is 1,928—an increase of 15 percent.

Last year, NNSA decided to consolidate the contracts at Y–12 and Pantex. What other efforts are you considering to consolidate operations and achieve administrative efficiencies?

Answer. NNSA continues to evaluate options for increased efficiencies throughout the complex, both in its contracting strategies and oversight. NNSA has three management and operating (M&O) contracts expiring over the next 5 years, Sandia National Laboratories, the Kansas City Plant, and the Nevada National Security Site. As the expiration dates draw near, NNSA will evaluate whether there are opportunities for efficiencies within an existing site or through consolidation, and develop an acquisition strategy that is in the best interest of the government for each individual procurement. Additionally, NNSA is conducting two studies that evaluate staffing requirements throughout the Enterprise, the "NNSA Baseline Staffing Requirements," which informs the NNSA's Federal Workforce Study to be completed by December 2012.

WORKFORCE PLANNING

Question. What have you done to review your administrative and overhead costs to ensure you are adequately overseeing work while not spending excessive amounts on unnecessary layers of administration?

Answer. NNSA ensures the Office of the Administrator (OA) account provides the appropriate level of Federal personnel and resources necessary to plan, manage, and oversee the operation of NNSA by participating in the planning, programming, budgeting, and evaluation (PPBE) processes.

During the planning, programming, and budgeting processes, the budget is formulated by working with the headquarters NNSA programs and field sites to develop a funding request that will accomplish the NNSA mission under fiscally constrained budgets. They are required to justify any requirement that is over the established baselines. In addition, over the past several years, our budget has reflected the efficiencies required in support of the President's Executive Order "Promoting Efficient Spending". This has forced us to reduce our travel and support service budgets by more than 25 percent and 20 percent, respectively, from our fiscal year 2010 funding levels. Also, in the fiscal year 2013 President's request, we proposed the internal transfer of Federal Unclassified Information Technology from the Office of the Administrator to Weapons Activities, NNSA CIO Activities, to achieve efficiencies by consolidating all information management activities under one program.

During the evaluation process, we ensure that the OA budget is executed effectively and efficiently. We have developed tracking systems, provide monthly execution reviews, review uncosted and unobligated balances on a quarterly basis, and in fiscal year 2012, did an extensive clean up of support service contracts and old uncosted balances.

In addition, in keeping with OMB and DOE expectations that administrative costs be minimized, one of the NNSA performance measures is to maintain the Office of the Administrator Federal administrative costs as a percentage of total Weapons Activities and Defense Nuclear Nonproliferation program costs at less than 6 percent.

SUBCOMMITTEE RECESS

Senator FEINSTEIN. Okay. Well, thank you very much. I appreciate it.

Mr. D'AGOSTINO. Thank you.

Senator FEINSTEIN. The hearing is adjourned.

[Whereupon, at 4:09 p.m., Wednesday, March 21, the subcommittee was recessed, to reconvene subject to the call of the Chair.]

ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR FISCAL YEAR 2013

WEDNESDAY, MARCH 28, 2012

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, DC.

The subcommittee met at 2:30 p.m., in room SD–192, Dirksen Senate Office Building, Hon. Dianne Feinstein (chairman) presiding.

Present: Senators Feinstein, Landrieu, Lautenberg, Harkin, Alexander, Collins, Murkowski, and Graham.

DEPARTMENT OF DEFENSE—CIVIL

DEPARTMENT OF THE ARMY

CORPS OF ENGINEERS—CIVIL

STATEMENT OF JO-ELLEN DARCY, ASSISTANT SECRETARY OF THE ARMY (CIVIL WORKS)

OPENING STATEMENT OF SENATOR DIANNE FEINSTEIN

Senator FEINSTEIN. Good afternoon, ladies and gentlemen, and welcome to the Energy and Water Subcommittee's oversight hearing on the fiscal year 2013 budget request for the United States Army Corps of Engineers and the Bureau of Reclamation.

Let me say from the outset, and I've never actually said this before in 20 years, I am a big fan of both of your agencies. The work that your agencies do touches nearly every person in the Nation. It's really where the pedal meets the metal. Forty-one States are served by 926 Corps harbors and 25,000 miles of waterways.

These harbors and waterways move more than 2.3 billion tons of cargo annually. Damages prevented by Corps flood control projects over the last decade exceed 25 billion annually. That's prevention. Every $1 invested in flood control since 1928 has prevented more than $7 in damages when adjusted for inflation.

I'd have to say that 7-to-1 is a good return on any investment. The Corps is the number one Federal provider of outdoor recreational opportunities, and the number one producer of hydroelectric power. And they're extensively involved in environmental and ecosystem restoration.

The Bureau of Reclamation provides water and power to the 17 Western States. They deliver water to 31 million people for municipal, rural, and industrial uses. Reclamation delivers water to 20

percent of the West's farmers, providing irrigation to 10 million acres of some of the most productive agricultural land in the world.

Reclamation also addresses water resources and challenges posed by drought, climate change, depleted aquifers, environmental needs, energy demands, and population increases in the West.

We depend on both of your agencies to build this water infrastructure as well as facilitating much needed environmental restoration. Not only does the work you perform provide jobs now, the infrastructure that's constructed, continues to benefit the economy for decades which in turn creates more jobs and boosts our standard of living.

While we all realize that for the next decade, we're going to be operating under austere budget caps in the Budget Control Act, we should not underfund agencies that provide tangible benefits and create jobs. This is really where America lives, where America works, and where America either thrives or does not.

The President's fiscal year 2013 budget for the Corps of Engineers is $4.7 billion, which is $271 million or 5.4 percent below the 2012 enacted amount. The Bureau of Reclamation's budget is proposed at $1.03 billion, which is $14 million or 1.3 percent below the 2012 enacted amount.

Candidly, I don't believe these budget requests provide the necessary resources to adequately fund ongoing work, and I've never said that before. For example, the Corps construction budget is proposed at $1.47 billion, which is $223 million or 13.2 percent below the 2012 enacted amount.

Dam safety and environmental restoration and compliance activities account for $850 million or 58 percent of the request. Inland and deep draft navigation accounts for $336 million or 23 percent of the request, and only $226 million or 15 percent is directly toward traditional flood control projects.

Of the 95 construction projects proposed in the budget request, only 46 are displayed with benefit-to-cost ratios. That means that more than one-half of the projects proposed for funding utilize a much more intangible set of budget criteria. And I'm going to ask about that.

A skeptic might even say that these budget decisions were arbitrary or politically based. However, my point is, that while I believe we can agree that nearly all of the items in the budget request have merit, one certainly has to question how the decisions were made for the many ongoing projects that were not included.

Based on my review, I believe your budget request needs some adjusting. It appears to me that while your overall budget for fiscal year 2013 boosts funding for navigation, which is a good idea, the budget proposes less funding for flood control in 2013 than you proposed in 2012.

I'm concerned about this decrease particularly in light of two record-setting floods in the Missouri and Mississippi Rivers in 2011. I very much hope that it's not the start of a trend.

In the general investigation account, 80 studies are listed in the budget for a total of $52 million. However, five studies are adequately funded for about $24 million of that total, leaving the other 75 studies competing for the remaining $28 million. This, candidly, doesn't seem balanced to me.

I have other issues with the Corps budget that I'll ask about at the appropriate time. Now, turning quickly to the Bureau of Reclamation's budget.

The scheduled completion of the Animas-La Plata Project and the Red Bluff fish screen and Pumping Plant Project this year seemed to have freed up some funding within your budget. As a result, your budget request seems to be more balanced than in prior years.

Hopefully, the planned completion of the Mni Wiconi Rural Water Project in 2013 will have a similar impact on the 2014 budget. So I'm pleased to see an increase in discretionary funding for the San Joaquin River Restoration in your budget for 2013.

This discretionary funding along with the mandatory funding under the settlement agreement will assure that water impacts are reduced or avoided while maintaining the San Joaquin River ecosystem.

Rural water projects are proposed at higher levels than in your budget request but are still not funded at the levels necessary, we think, to continue progress on these projects. So I look forward to exploring that with you as well.

Senator Alexander, I'm very fortunate, if anybody in this room doesn't know it, I say it all the time, I'm really very fortunate to work with a great ranking member. He is sincere. He is straightforward. He is bright. He is everything. So I have really lucked out.

So let me recognize our distinguished ranking member, Senator Alexander.

STATEMENT OF SENATOR LAMAR ALEXANDER

Senator ALEXANDER. Thank you, Madam Chairman. The feeling is absolutely mutual, and I'd like to write that down if I may. That's very kind of you to say that.

Senator FEINSTEIN. Okay.

Senator ALEXANDER. We do have a very good working relationship, and I thank the staff for their working together as well and the courtesy that the chairman shows us as we work on these issues.

That was a very good statement of reaction, I think, to the proposals that we have. I'd like to make just two or three points, and then I'll look forward to your testimony.

One, I want to congratulate the Corps of Engineers for the work you did during the floods and natural disasters of 2011. The only way to congratulate you is to compare what happened in 2011 with what happened in the big flood in 1927, which we call the Great Flood.

Books have been written about it. That year, I think 16 million acres were inundated, 500 people died, 600,000 displaced, 41,000 buildings destroyed, rail lines cut, communities wiped out. That was the story of 1927.

But contrast that with 2011, after a lot of investment and work by the Corps of Engineers, no lives lost, 4 million people protected. It was all done so well that many people and the rest of the country didn't even know there was a big problem.

The Corps estimates that our investments in the Mississippi River and Tributaries Project of about $14 billion over the last 80 years probably saved about $500 billion. Figures like that are al-

ways speculative, but the idea is probably right. That a small investment has had a big return.

And the Congress provided $1.7 billion in disaster recovery funding last year to restore the damages from flooding to Corps facilities. One way to tell the level of interest in an agency's work is by the attendance of Senators at hearings involving them.

And I can remember a hearing last year of the Environment and Public Works Committee at which I believe 17 Senators of both parties showed up to either talk about, criticize, praise, or have some opinion about the effect of the big floods in their States.

Now, the second thing I'd like to talk about is the Harbor Maintenance Trust Fund and the Inland Waterways Trust Fund. I've now watched this for a few years. We have two trust funds and neither one of them works well.

The first, the Harbor Maintenance Trust Fund, collects money successfully, but it turns out we can't use the money on things communities need to expand ports and double exports as the President has suggested.

The second fund, the Inland Waterways Trust Fund, doesn't collect enough money. And so projects like the Chickamauga Lock and others are on indefinite hold, really, are not getting the attention they need.

I would like to strongly suggest, and the chairman and I have been working on this with other members of the subcommittees, that we step back and take a look at these two trust funds, Harbor Maintenance, Inland Waterway, and think about our country and the competitive position that we want it to be in in the future, and think of what we need to do.

Don't think about the money involved, or how to collect the money. Think first about, what do we need to do? What's our vision for the future? And then, see if we can match money and procedures to the vision we have.

My experience is that most ideas in Washington, DC fail for lack of the idea. And I would strongly urge you to work with us over the next few months to see if we can take both these trust funds, and not just muddle along the way we had been muddling.

But to say, okay, what do we need to do for, you know, the greatest country in the world, the one that produces 25 percent of all the wealth in the world, with the Panama Canal being deepened, our ports need to be deepened. We need locks and dams that are safe in the inland waterways.

And I believe that if we have the right vision, we would be able to do something about that. I remember a few years ago, we had something called America Creating Opportunities to Meaningfully Promote Excellence in Technology, Education, and Science (America COMPETES) Act. We asked a distinguished group, the National Academies did, to tell us what would be the 10 things the Congress could do to keep us competitive in the world marketplace.

This distinguished group, headed by Norm Augustine, gave us 20 things. We eventually got 35 Republican and Democratic co-sponsors. We passed that law. It's been funded. It's been reauthorized and it succeeded because we had an idea and we stopped muddling.

Now, it didn't do everything. But we need to do the same kind of thing with our ports and our locks and our dams. So I ask you to work with us to do that.

I'm particularly troubled about the $1 billion cost increase in Olmsted Locks and Dam. Makes me almost think I'm in the National Nuclear Security Administration (NNSA) hearing where things just keep going up and up and up and up and up with no rational reason for it.

I mean, what is happening is that single project is soaking up all the money available for everything else in the country, and that's poor planning, and something's wrong when we have that kind of increase.

I'm particularly sensitive to that because of the effect it's having on the Chickamauga Lock on the Tennessee River near Chattanooga. If that lock fails, it closes down one-third of the navigation on the Tennessee River. It would force chemical plants, Tennessee Valley Authority (TVA) reactors, Oak Ridge National Lab to put more freight and hazardous materials on our roads.

It would put 150,000 heavy trucks in Interstate 75, and it would flood downtown Chattanooga. Now, we don't want any of that. And we also don't want the slowdown that we're seeing right now with the Chickamauga Lock.

I know that there had been some work done with industry to try to come up with a way to put more money into the trust fund. But what I'm asking for is working with Industry and the subcommittee and with anybody who has any idea, let's have a vision for where we need to go with both the needs that are supposed to be addressed by these trust funds and come up with a mechanism that works.

I certainly pledge my effort to do that and working with the chairman and Senator Collins and other members of the subcommittee, I would like to give that a try over the next few months.

Thank you, Madam Chairman.

Senator FEINSTEIN. Thank you very much. Senator Collins, do you have a comment you would like to make at this time?

STATEMENT OF SENATOR SUSAN COLLINS

Senator COLLINS. Thank you, Madam Chairman.

First of all, let me just agree with the praise that the chairman and the ranking member heaped on one another. They do work extraordinarily well together and they're truly a model for how the Senate should work.

I know that my west coast colleagues will address the Bureau of Reclamation's budget requests so my comments and questions today are going to focus on the Army Corps of Engineers.

I just want to make two points. The first is that I'm very concerned about the discrepancy in the way the Army Corps regulates developments that affect wetlands versus how it is done in the State of Maine and other parts of the country.

The second issue that I want to raise is my concern that we not forget as we look at the major navigational waters, the need for maintenance, dredging projects at smaller harbors and waterways, those are very important in a State like mine, for our fishermen, for example.

And I know that last year, the Chair and the Ranking Member worked with us to include $30 million for operations and maintenance projects at small, remote, or subsistence navigation harbors and waterways. And I think that is extremely important as well.

So, thank you for the opportunity to comment.

Senator FEINSTEIN. Thank you.

From the Department of the Army, we will hear from Jo-Ellen Darcy, the Assistant Secretary of the Army for Civil Works, and Major General Bo Temple, Acting Chief of Engineers for the Corps.

From the Department of the Interior, we will hear from Anne Castle, Assistant Secretary for Water and Science, and Mike Connor, Commissioner, Bureau of Reclamation.

Secretary Darcy, we will begin with you.

SUMMARY STATEMENT OF JO-ELLEN DARCY

Ms. DARCY. Thank you, Senator Feinstein, and distinguished members of the subcommittee, thank you for the opportunity to present the President's fiscal year 2013 budget for the Civil Works program of the Army Corps of Engineers.

I am Jo-Ellen Darcy, the Assistant Secretary of the Army for Civil Work, and I'll now summarize my statement and ask that my complete statement be included in the record.

The President's 2013 budget provides $4.7 billion for the Civil Works program. This is $100 million above the President's 2012 budget request for Civil Works.

The budget reflects the Administration's priorities through targeted investments in the Nation's water resources infrastructure, including dams and levees to address flood risks, and navigation projects in support of both domestic and global trade, especially at coastal ports that support the greatest national economic activity. The budget also includes restoration of major ecosystems affected by past water resources development in support of the Administration's initiatives such as America's Great Outdoors and the Clean Water Framework.

The budget also supports programs that contribute to the protection of the Nation's waters and wetlands, the generation of low-cost, renewable hydropower, the restoration of certain sites contaminated as a result of the Nation's early atomic weapons development program, emergency preparedness and training to respond to natural disasters, and recreation, environmental stewardship and water supply storage at existing projects owned or operated by the Corps.

The budget funds a number of activities to completion, including 5 flood risk management projects, 3 navigation projects, 1 hydropower mitigation project, and 18 studies.

The Civil Works budget includes funding for three high-performing construction new starts, six study new starts, and a new activity in the Operation and Maintenance account to reduce the vulnerability of our Civil Works projects to extreme natural events.

The budget includes funding to evaluate the potential for, and encourage the use of, nonstructural alternatives during postdisaster recovery decisionmaking while leveraging the expertise of intergovernmental teams known as Silver Jackets to support

States and communities in the development and implementation of actions to reduce flood risks.

The budget includes the highest amount ever budgeted for use of receipts from the Harbor Maintenance Trust Fund to maintain coastal channels and harbors. Inland waterway capital investments in the construction account are funded at the maximum amount that is affordable within the project trust fund revenues under existing law.

Last September, President Obama transmitted to the Congress a proposal to modernize financing of capital investments on the inland waterways through establishing a new vessel user fee to supplement the existing fuel tax.

The Administration will continue to work with the Congress and stakeholders to enact a mechanism to increase revenues to this trust fund. The 2013 budget provides $532 million for dam and levee safety activities including $491 million for dam safety activities in both the flood risk management and navigation programs.

We have $41 million to continue the comprehensive levee safety initiative. The Army continues to work to modernize the Civil Works Planning program. Proposed changes are aimed at dramatically shortening the time and the costs of completion for pre-authorization studies while retaining the quality of the analyses.

The budget again includes $3 million for the Veterans Curation Project which provides vocational rehabilitation and innovative training for wounded and disabled veterans while achieving historical preservation responsibilities for archeological collections administered by the Corps.

This program will contribute to the goals of the President's recently announced Veterans Job Corps.

PREPARED STATEMENT

In summary, the 2013 budget for the Army Civil Works program is a fiscally prudent, appropriate level of investment that will generate jobs, contribute to a stronger economy, and continue progress on important water resources investments that will yield long-term returns for the Nation and its citizens.

I'd like to thank the members of the subcommittee and I look forward to working with you in support of this President's budget. Thank you.

[The statement follows:]

PREPARED STATEMENT OF JO-ELLEN DARCY

Madam Chairman and distinguished members of the subcommittee, thank you for the opportunity to present the President's budget for the Civil Works program of the United States Army Corps of Engineers (COE) for fiscal year 2013.

OVERVIEW

The fiscal year 2013 budget for the Civil Works program reflects the Administration's priorities through targeted investments in the Nation's water resources infrastructure, including dams and levees, navigation investments in support of both domestic and global trade, restoration of ecosystems affected by past water resources development, and support of administration initiatives such as America's Great Outdoors and the Clean Water Framework. These investments will generate American jobs, contribute to a stronger economy, improve reliability and efficiency of waterborne transportation, reduce flood risks to businesses and homes, and provide low-cost renewable hydropower. In addition, investment in the restoration of significant

aquatic ecosystems and the remediation of sites associated with the Manhattan Project of the 1940s will not only provide important benefits but also support jobs.

The primary objectives of the budget are as follows:

—Focus funding on water resources investments that will yield high-economic and environmental returns or address a significant risk to public safety.

—Support commercial navigation through maintenance and related activities at the most heavily used commercial harbors and waterways in the Nation.

—Modernize financing of capital investments on inland waterways by establishing a new user fee.

—Restore large ecosystems such as the California Bay-Delta, Chesapeake Bay, the Everglades, Great Lakes, and Gulf Coast.

—Invest in improvements to the Corps regulatory program that will provide greater efficiency, providing benefits to businesses and more protection to regulated wetlands and small streams.

—Provide significant funding for dam and levee safety, including interim risk reduction measures designed to immediately mitigate risk at the highest risk dams, and continue funding to advance the Corps' national levee safety initiative to help improve the safety of Federal levees and to provide available levee data on levee safety issues to non-Federal entities.

—Support the modernization of Federal water resources infrastructure processes to address 21st century water resources needs through improvements to policies and procedures that govern Federal water resources development and strategies for both managing the Nation's aging infrastructure and restoring aquatic ecosystem functions affected by past investments.

—Increase the organizational efficiency and improve the management, oversight, and performance of ongoing programs.

The budget funds the planning, design, construction, operation and maintenance of projects, and focuses on the three main Civil Works mission areas:

—commercial navigation;

—flood and storm damage reduction; and

—aquatic ecosystem restoration.

The budget also supports programs that contribute to the protection of the Nation's waters and wetlands; the generation of low-cost renewable hydropower; the restoration of certain sites contaminated as a result of the Nation's early atomic weapons development program; emergency preparedness and training to respond to natural disasters; and recreation, environmental stewardship, and water supply storage at existing projects owned or operated by the Corps.

FISCAL YEAR 2013 DISCRETIONARY FUNDING LEVEL

The budget for fiscal year 2013 for the Civil Works program provides a fiscally prudent, appropriate level of investment in the Nation's water resources infrastructure and in the restoration of its aquatic ecosystems.

In keeping with President Obama's commitment to put the country on a sustainable fiscal path, while continuing to invest in those efforts that are a priority for the Nation, the budget includes $4.731 billion in discretionary appropriations for the Army Civil Works program. This represents a reduction of $271 million, or about 5 percent, from the fiscal year 2012 enacted level, but is a $100 million above the President's fiscal year 2012 budget. The fiscal year 2013 funding level reflects a considered, practical, effective, and sound use of the Nation's financial resources.

Within the $4.731 billion recommended appropriations, $1.47 billion is for projects in the Construction account, and $2.398 billion is for activities funded in the Operation and Maintenance (O&M) account. The budget also includes:

—$102 million for Investigations;

—$234 million for Mississippi River and Tributaries;

—$30 million for Flood Control and Coastal Emergencies;

—$205 million for the Regulatory Program;

—$104 million for the Formerly Utilized Sites Remedial Action Program;

—$182 million for the Expenses account; and

—$5 million for the Office of the Assistant Secretary of the Army for Civil Works.

Attachment 1 shows this funding by account and program area.

ATTACHMENT 1.—FISCAL YEAR 2013 BUDGET—BUSINESS LINE/ACCOUNT CROSS-WALK

[In millions of dollars]

Business Lines	Funding Categories												
				MR&T									
	I	C	O&M	I	C	O&M	TOTAL MRT	FUSRAP	FCCE	REG	E	OASA (CW)	TOTAL
Flood and Coastal Storm Damage Reduction	46	652	536	<1	83	89	172	.....	.....	.....	.....	.....	1,406
Coastal	5	17	11	.....	.....	4	4	.....	.....	.....	.....	.....	37
Inland	41	635	525	.....	83	85	168	.....	.....	.....	.....	.....	1,369
Hydropower	.....	2	178	.....	.....	.....	.....	.....	.....	.....	.....	.....	180
Navigation	25	352	1,326	.....	14	30	44	.....	.....	.....	.....	.....	1,747
Coastal	17	151	797	.....	.....	2	2	.....	.....	.....	.....	.....	967
Inland	8	201	529	.....	14	28	42	.....	.....	.....	.....	.....	780
Environment:													
Aquatic Ecosystem Restoration	31	464	14	<1	2	.....	2	.....	.....	.....	.....	.....	512
Stewardship	.....	.....	92	.....	.....	4	4	.....	.....	.....	.....	.....	96
FUSRAP	.....	.....	.....	.....	.....	.....	.....	104	.....	.....	.....	.....	104
Regulatory	.....	.....	.....	.....	.....	.....	.....	.....	.....	205	.....	.....	205
Recreation	.....	.....	241	.....	.....	11	11	.....	.....	.....	.....	.....	252
Emergency Management (incl. NEPP)	.....	.....	6	.....	.....	.....	.....	.....	30	.....	.....	.....	36
Water Supply	.....	.....	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	6
Expenses	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	182	.....	182
OASA(CW)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5	5
TOTAL	102	1,471	2,398	1	99	134	234	104	30	205	182	5	4,731

I=Investigations; C=Construction; O&M=Operation and Maintenance; MR&T=Flood Control, Mississippi River and Tributaries; FUSRAP Formerly Utilized Sites Remedial Action Program; FCCE=Flood Control and Coastal Emergencies; REG=Regulatory Program; NEPP=National Emergency Preparedness Program; E=Expenses; OASA(CW)=Office of the Assistant Secretary of the Army for Civil Works.

The fiscal year 2013 budget continues the Army's commitment to a performance-based approach to budgeting to provide the best overall return from available funds from a national perspective in achieving economic, environmental, and public safety objectives. Competing investment opportunities for studies, design, construction, and operation and maintenance were evaluated using multiple metrics, and objective performance criteria guided the allocation of funds.

The fiscal year 2013 budget supports investments in commercial navigation, flood risk management, aquatic ecosystem restoration, and other programs. The distribution of funding among these programs is similar to the distribution in the fiscal year 2012 budget, except for an 11-percent increase in investments in support of waterborne transportation. Of the total in the fiscal year 2013 budget, 30 percent is allocated to flood risk management activities; 37 percent is allocated to commercial navigation; and 33 percent to environmental, hydropower, and other activities. Five flood risk management projects, three navigation projects, one hydropower project, and 18 studies are funded to completion in this budget.

NEW INVESTMENTS IN FISCAL YEAR 2013

The Civil Works budget includes funding for three high-performing construction new starts and six new study starts, and a new activity to focus on reducing the vulnerability of Civil Works projects to extreme natural events.

In the Construction account, parallel to the recommendation for fiscal year 2012, the budget includes $7.5 million for the Hamilton City project in California, which will provide environmental restoration and flood damage reduction benefits in the Bay-Delta area; $16.8 million for the Louisiana Coastal Area Ecosystem Restoration program, a nationally significant and urgent effort to both restore habitat and protect the important Louisiana gulf region from the destructive forces of storm driven waves and tides, which will complement the ongoing Federal effort under the Coastal Wetlands Planning, Protection, and Restoration Act, as amended; and $2 million for the Lower Colorado River Basin, Onion Creek, Texas, project, which will significantly reduce the risk of flood damages using nonstructural solutions.

There are six new studies in the Investigations account, five of which were recommended in fiscal year 2012. These six studies are:

—an important new reconnaissance study for fish passage at Englebright and Daguerre Point Dams on the Yuba River in California for $100,000;

—environmental restoration and flood damage reduction at Caño Martin Peña in Puerto Rico for $100,000;

—the Chesapeake Bay Comprehensive Plan for $250,000;

—the Louisiana Coastal Area Comprehensive Plan for $100,000; and

—the national Water Resources Priorities Study for $2 million.

The fiscal year 2013 budget also includes $100,000 for a new study of the Houston Ship Channel, Texas.

The Water Resources Priorities Study will establish a baseline assessment of the Nation's flood risks on both national and regional scales, improve existing programs, and reduce future costs by focusing on which ongoing and future investments will best reduce flood risks. The $8 million for new line-item called Reducing Civil Works Vulnerability in the O&M account will aid the Corps in creating a more robust Civil Works infrastructure.

Within the Floodplain Management Services Program, $3 million is recommended to evaluate the potential for and encourage the use of nonstructural alternatives and actions during post-disaster recovery decisionmaking. With these funds, the Corps would leverage the expertise of intergovernmental teams known as Silver Jackets to provide selected technical services and support States and communities in the development and implementation of actions to reduce flood risks, with an emphasis on nonstructural alternatives.

INFRASTRUCTURE MODERNIZATION

The Administration is developing and considering proposals to serve as the foundation of a comprehensive water resources infrastructure modernization initiative, which will help the Federal Government support a 21st century water resources infrastructure. In considering and developing these new policies, procedures, and strategies, the Administration will continue to engage and collaborate with the Congress and the many stakeholders whose interests are tied to the Nation's water infrastructure, including State, local, and tribal governments.

NAVIGATION

The budget includes a high level of investment in support of domestic and global waterborne transportation, especially at coastal ports that support the greatest na-

tional economic activity. On the inland waterways, the budget focuses on maintaining reliable service at those waterways with a high level of commercial use, specifically, the Lower Mississippi River, Ohio River, Upper Mississippi River, Gulf Intracoastal Waterway, Illinois Waterway, Tennessee River, and the Black Warrior Tombigbee Waterway. Funding to operate and maintain the Mississippi River, Baton Rouge to the Gulf project is $82 million, a significant increase above the $68 million requested for fiscal year 2012.

The budget provides $68 million to continue deepening the New York and New Jersey Harbor project in order to complete construction by fiscal year 2014. The budget also includes $38 million to construct dredge material placement sites at several deep draft ports to provide additional capacity for the maintenance of these projects in the future. It provides $12 million to continue studies and designs at coastal ports, including several proposals to deepen existing channels to accommodate Post-Panamax commercial shipping.

The budget also provides for use of $848 million from the Harbor Maintenance Trust Fund to maintain coastal channels and harbors. This is a 12-percent increase over the fiscal year 2012 budget and the highest amount ever proposed in a President's budget for use of receipts in the Harbor Maintenance Trust Fund.

Inland waterway capital investments are funded at $201 million, of which $95 million will be derived from the Inland Waterways Trust Fund. This is the amount that is affordable within the projected level of revenue to this trust fund under existing law. In September 2011, as part of his Jobs bill proposal, President Obama transmitted to the Congress a proposal to modernize financing of capital investments on the Nation's inland waterways. The proposal includes increasing the revenue paid by commercial navigation users sufficiently to meet their share of the costs of capital development activities financed from the Inland Waterways Trust Fund. A new vessel user fee would supplement the existing fuel tax. The Administration will continue to work with the Congress and stakeholders to enact such a mechanism to increase revenue to this trust fund, in order to enable a significant increase in funding for high-performing inland waterway capital investments in the future.

FLOOD RISK MANAGEMENT

Through both structural and nonstructural measures, the flood risk management program serves as a vehicle to reduce the risk to human safety and property from riverine and coastal flooding. The fiscal year 2013 budget provides $1.4 billion for the flood risk management program, including $492 million that is directed at dam and levee safety.

This flood risk management program also includes $41 million to continue the comprehensive levee safety initiative to assess the conditions of Federal levees and help ensure that they are safe. These funds will also enable the Corps to better assess and communicate risk, for example, by providing information that will assist non-Federal entities in identifying safety issues with their levees. The Corps will be conducting levee inspections and levee risk screenings, adding to the data in the national levee inventory, and providing the available levee data to communities for their use in gaining accreditation under the Federal Emergency Management Agency's National Flood Insurance Program.

In addition to this funding in the flood risk management program, the budget includes $40.2 million in the navigation program to address dam safety issues at two navigation dams (Locks and Dams 2,3,4, Monongahela River, Pennsylvania, and Lockport Lock and Dam, Illinois).

AQUATIC ECOSYSTEM RESTORATION

The fiscal year 2013 budget reflects a continuing effort by the Corps and other Federal agencies to collaborate developing a unified budget proposal, which reflects the Nation's priorities for restoring its most significant aquatic ecosystems. Attachment 2 provides a list of these ecosystems and the Corps funding amounts budgeted on this basis.

ATTACHMENT 2.—FISCAL YEAR 2013 PRIORITY ECOSYSTEMS FUNDING

[In millions of dollars]

Ecosystem account [1]	Projects and studies	Amount
	Bay Delta:	
I	Yuba Fish Passage	.1
I	CALFED Coordination	.1
	San Pedro Watershed	.2
I	Sac-San Joaquin Delta Island and Levee Study	1.02
I	Sac-San Joaquin Comp Study	.3
C	Hamilton City	7.5
C	American River Common Features	8
C	Sac River Bank Protection	3
C	Success Dam Remediation [DSAP]	3
O&M	Additional studies and projects in Navigation and Flood Risk Management Programs	28.3
	Total, Bay Delta	51.5
	Chesapeake Bay:	
I	Chesapeake Bay Comp (new recon)	.3
I	Lynnhaven	.3
I	Upper Rappahannock	.05
I	Anacostia—Montgomery	.25
I	Anacostia—Prince Georges	.25
C	Chesapeake Oysters	5
C	Poplar Island	13.5
	Total, Chesapeake Bay	19.6
	Everglades:	
C	Everglades	153.3
O&M	Everglades	7.78
	Total, Everglades	161.08
	Great Lakes:	
I	Interbasin Control Study [GLMRIS]	3
C	Chicago Sanitary and Ship Canal [CSSC]	24.5
O&M	Dredging	75.09
	Total, Great Lakes	102.59
	Gulf Coast:	
I	LCA—studies, PED	9.96
C	LCA—Beneficial Use	5
C	LCA—Amite Diversion	5.6
C	LCA—Atchafalaya to N Terrebonne	6.2
	Total, Gulf Coast	26.26

[1] Key: I=Investigation; C=Construction; O&M=Operation and Maintenance.

The budget for the Army Civil Works program provides $161 million to efficiently fund the ongoing South Florida Ecosystem Restoration Program, which includes the Everglades, consisting of $153 in the Construction account and $8 million in the O&M account. It also supports several major ecosystem-wide initiatives, by providing a total of $81 million in the aquatic ecosystem restoration program in support of the Federal efforts in the California Bay-Delta, Chesapeake Bay, the Great Lakes, and the gulf coast.

The budget includes $98 million for the Columbia River Fish Mitigation program, an ongoing effort to reduce the adverse impacts of a series of Corps dams on migrating salmon. Funds will be used to construct juvenile fish bypass facilities, improve adult fish ladders and conduct other activities that support salmon habitat. The budget also provides $90 million for ongoing work under the Missouri River Fish and Wildlife Recovery program to construct shallow water habitat and undertake other activities to recover and protect federally listed species, such as the pallid sturgeon.

PLANNING IMPROVEMENTS

The Army continues to work to modernize the Civil Works Planning program to better address the current and future water resources needs of the Nation. The Army has undertaken an aggressive review of all ongoing, protracted feasibility studies to assure that studies are scoped appropriately and to focus limited resources on studies with the highest probability of leading to high performing projects. Proposed changes are aimed at dramatically shortening the timeframe for completion of pre-authorization studies while retaining the quality of the analyses, reducing the cost of conducting planning studies, and increasing Corps corporate and individual accountability for decisions.

The fiscal year 2013 budget includes $4 million for the national Planning Support Program. These funds will be used to improve training of Corps planning personnel, including through the Planning Associates Program; support development and implementation of revisions to the Water Resources Principles and Guidelines in accordance with requirements in the Water Resources Development Act of 2007 (sec. 2031, Public Law 110–114); and provide for more stable, capable national planning centers of expertise.

REGULATORY PROGRAM

The budget includes $205 million for the Regulatory Program, which is a $9 million increase above the fiscal year 2012 budget. This funding increase is one of the Army's priorities. It will support a transparent and timely permit review process, bringing greater program efficiency and customer service. It will enable the Corps to better protect high-value aquatic resources, enable more timely business planning decisions, and support sustainable economic development.

VETERANS CURATION PROJECT

The fiscal year 2013 budget includes $3 million to continue the Veterans Curation Project, which provides vocational rehabilitation and innovative training for wounded and disabled veterans, while achieving historical preservation responsibilities for archaeological collections administered by the Corps. The project supports work by veterans at curation laboratories located in Augusta, Georgia; St. Louis, Missouri; and Washington, DC. This project will contribute to the goals of the President's recently announced Veterans Job Corps.

AMERICAN RECOVERY AND REINVESTMENT ACT

The American Recovery And Reinvestment Act (ARRA) provided $4.6 billion for the Civil Works program. That amount includes:

—$2 billion for Construction;
—$2.1 billion for O&M;
—$375 million for Mississippi River and Tributaries;
—$25 million for Investigations;
—$25 million for the Regulatory Program; and
—$100 million for the Formerly Used Sites Remedial Action Program.

The Corps applied ARRA funds to more than 800 projects across the Nation.

The Army is proud to report that 99.8 percent of the ARRA appropriations for Civil Works are obligated, and more than 87 percent of the funds have been outlayed to date. These investments helped create or maintain direct construction industry jobs, jobs in firms supplying or supporting construction work and the businesses that sell goods and services to these workers and their families.

CONCLUSION

In summary, the President's fiscal year 2013 budget for the Army Civil Works program is a performance-based budget that supports continued progress on important water resources investments that will yield long-term returns for the Nation and its citizens.

These investments will generate jobs, contribute to a stronger economy, support waterborne transportation, reduce flood risks to businesses and homes, provide low-cost renewable hydropower, restore important ecosystems, and deliver other benefits to the American people.

Madam Chairman and members of the subcommittee, I look forward to working with this subcommittee in support of the President's budget. Thank you.

Senator FEINSTEIN. Thank you very much, Secretary Darcy. General Temple, would you like to make comments now? Please go ahead.

STATEMENT OF MAJOR GENERAL MERDITH W.B. TEMPLE, ACTING COMMANDING GENERAL, CHIEF OF ENGINEERS

General TEMPLE. Madam Chairman and members of the subcommittee, I'm Major General Bo Temple, the Acting Commander of U.S. Army Corps of Engineers (USACE) and Acting Chief of Engineers, and I'm honored to be here with Ms. Darcy to testify regarding the President's fiscal year 2013 budget for the Civil Works program.

The Corps is wrapping up an unprecedented period of construction and project execution. Over the past 5 years, we provided $12 billion in base realignment and closure (BRAC)-related construction, $7 billion of American Recovery and Reinvestment Act work in both our Military and Civil Works programs, and about $14 billion of gulf coast recovery work.

In 2011, more than 2,000 Corps employees deployed in response to multiple disasters, including Midwest tornadoes and flooding in the Missouri, Mississippi, and Souris river basins and also throughout the Northeast due to Hurricane Irene and Tropical Storm Lee.

Our systems performed as designed, saving lives and preventing billions in damages. However, as you are aware, many of our projects were damaged, and we are currently working to address those issues utilizing the $1.7 billion the Congress appropriated for this purpose.

The fiscal year 2013 budget includes $4.7 billion to fund Civil Works activities within the Corps' three main water resources missions: Commercial navigation, flood and storm damage reduction, and aquatic ecosystem restoration.

The budget includes $102 million for these and related activities in the Investigations account, and $1 million in the Mississippi River and Tributaries (MR&T) account.

It funds 81 continuing studies and six new studies. It also includes more than $10 million for work on proposals to deepen seven U.S. ports.

The budget includes $1.47 billion in the Construction account and $99 million in the MR&T account, funding 101 construction projects including 57 flood and coastal storm damage reduction projects, 5 of which are budgeted for completion, 23 commercial navigation projects, 19 aquatic ecosystem restoration projects, and mitigation associated with 2 hydropower projects.

The Operation and Maintenance (O&M) program includes $2.53 billion and an additional $134 million under the MR&T program with a focus on the maintenance of key commercial navigation, flood and storm damage reduction, hydropower and other facilities.

The Corps will continue to implement actions to improve its planning program through planning modernization efforts focusing on how best to modernize the planning program to more effectively address water resources challenges.

The Corps always strives to improve its efficiency and effectiveness. In fiscal year 2013, the Corps will further expand the implementation of modern asset management programs using a larger

portion of its funds for the most important maintenance work while implementing an energy sustainability program that pursues major deficiencies in the acquisition and operations of our information technology assets as well as finalizing the organization of the Corps acquisition work force.

The fiscal year 2013 budget provides $30 million for preparedness for floods, hurricanes, and other natural disasters including $3 million in support of the Corps participation in levee safety and other flood mitigation initiatives such as the Silver Jackets program to provide unified Federal assistance in implementing flood and coastal storm damage reduction solutions.

Internationally, the Corps of Engineers continues to support the mission to help Iraq and Afghanistan build foundations for democracy, freedom, and prosperity. In Iraq and Afghanistan, we completed or closed out hundreds of projects in support of the host nations and coalition forces.

This critical infrastructure and our capacity building efforts will play a key role in ensuring stability and security for those nations.

PREPARED STATEMENT

The Corps remains committed to change that ensures an open, transparent and performance-based Civil Works program while remaining focused on consistently delivering innovative resilient risk-informed solutions to the Armed Forces and to the Nation.

Thank you, Madam Chairman and members of the subcommittee. This concludes my statement, and I'm happy to take questions when we're ready.

Senator FEINSTEIN. Thank you very much, General Temple.

[The statement follows:]

PREPARED STATEMENT OF MAJOR GENERAL MERDITH W.B. TEMPLE

INTRODUCTION

Madam Chairman and distinguished members of the subcommittee: I am honored to be testifying before your subcommittee today, along with the Assistant Secretary of the Army (Civil Works), the Honorable Jo-Ellen Darcy, on the President's fiscal year 2013 budget for the Civil Works Program of the United States Army Corps of Engineers (COE).

The Corps is wrapping up an unprecedented period of construction and project execution. Over the past 5 years, we provided $12 billion in base realignment and closure (BRAC)-related construction; $7 billion of American Recovery and Reinvestment Act (ARRA) work in our Military and Civil Works programs combined; and about $14 billion of gulf coast recovery work.

In 2011, the Corps responded to several devastating tornadoes and floods, as well as hurricanes and tropical storms, under the National Response Framework in support of Federal Emergency Management Agency (FEMA). Flooding was a significant problem as we experienced record high water levels for a much longer duration than is the norm throughout much of the country. Our flood risk reduction systems were operated at their maximum capacity, some for the first time.

The great men and women of COE worked tirelessly, together with our State, local, and industry partners, to ensure that we could deliver on all of our commitments last year. It is through their efforts that we were successful and will continue to be able to carry out the projects and programs included in the fiscal year 2013 budget.

My statement covers the following 11 topics:

—Summary of fiscal year 2013 program budget;

—Direct Program;

—Investigations Program;

—Construction Program;

—Operation and Maintenance Program;

—Reimbursable Program;
—Planning Program Modernization;
—Efficiency and Effectiveness of Corps Operations;
—Value of the Civil Works Program to the Nation's Economy and Defense;
—Research and Development; and
—National Defense.

SUMMARY OF FISCAL YEAR 2013 PROGRAM BUDGET

The Corps is fully committed to its support of the Nation's priorities to reduce the deficit, contribute to the economy, and restore and protect the aquatic environment. The fiscal year 2013 Civil Works budget provides the Corps with the means to support these priorities. It is a performance-based budget, which reflects a focus on the projects and activities that provide the highest net economic and environmental returns on the Nation's investment or address significant risks to human safety, to include continuing a comprehensive levee safety initiative and supporting increased interagency and stakeholder collaboration. The Reimbursable Program funding is projected to provide an additional $1.6 billion.

DIRECT PROGRAM

The budget includes $4.7 billion for Civil Works activities, with priority on the highest performing activities within our three main water resources missions—commercial navigation, flood and storm damage reduction, and aquatic ecosystem restoration. The budget invests in more than 600 flood and storm damage reduction projects, 143 commercial coastal navigation projects, and 51 projects on the inland waterways. For example, it provides increased funding for high use, commercial, coastal channels, and harbors including support of efforts to accommodate Post-Panamax ships. In total, the budget supports ongoing construction of 98 projects and three new construction starts. The budget includes funds for 81 studies already underway and six new study starts. It will enable the Corps to process approximately 80,000 permit requests and to operate 75 hydropower plants with 350 generating units that produce approximately 24,000 megawatts annually. At its multipurpose projects, the Corps also stores water to supply about 14 percent of the Nation's municipal water needs. The budget will also sustain the Corps' preparedness to respond to natural disasters.

INVESTIGATIONS PROGRAM

The budget for the Investigations program will enable the Corps to evaluate and design future projects that are most likely to be high-performing within the Corps three main water resources mission areas. The budget includes $102 million for these and related activities in the investigations account and $1 million in the Mississippi River and Tributaries account. It funds 81 continuing studies and six new studies:
—Englebright and Daguerre Point Dams (Yuba River) Fish Passage, California;
—Caño Martin Peña, Puerto Rico;
—the Chesapeake Bay Comprehensive Plan;
—the Louisiana Coastal Area Comprehensive Study; and
—the Houston Ship Channel, Texas.
Funding is also included for the Water Resources Priorities Study, a high-priority evaluation of the Nation's vulnerability to inland and coastal flooding, as well as the effectiveness, efficiency, and accountability of existing water resource programs and strategies. Investigations funding also includes $10.63 million for work on proposals to deepen seven U.S. ports:
—Boston, Massachusetts;
—Charleston, South Carolina;
—Savannah, Georgia;
—Wilmington, North Carolina;
—Brazos Island, Brownsville Channel, Texas; and
—Jacksonville, Florida, and Houston, Texas.

CONSTRUCTION PROGRAM

The goal of the construction program is to deliver as high a value as possible to the Nation from the overall available funding through the construction of new water resources projects and the replacement, rehabilitation, and expansion of existing flood and storm damage reduction, aquatic ecosystem restoration, commercial navigation, and hydropower projects. The fiscal year 2013 budget includes $1.47 billion in the Construction account and $99 million in the Mississippi River and Tributaries

account to further this objective. Consistent with this objective, the budget also gives priority to projects that address a significant risk to human safety.

The budget funds 101 construction projects, including:

—57 Flood and Coastal Storm Damage Reduction projects (five budgeted for completion);

—23 Commercial Navigation projects (including 11 continuing mitigation items and 6 dredged material placement areas);

—19 Aquatic Ecosystem Restoration Projects (including 4 projects to meet Biological Opinions); and

—mitigation associated with two Hydropower projects.

Three of these construction projects are new starts:

—Hamilton City, California;

—Louisiana Coastal Area Ecosystem Restoration, Louisiana; and

—Lower Colorado River,Wharton-Onion Creek, Texas.

This program also includes significant environmental mitigation work in the Columbia River Basin and the Missouri River Basin needed to support the continued operation of COE multipurpose projects, which improves habitat and migration pathways for endangered and threatened species.

Performance measures, which the Corps uses to establish priorities among projects, include the benefit-to-cost ratios for projects with economic outputs and the most cost-effective restorations of significant aquatic ecosystems. The selection process also gives priority to dam safety assurance, seepage control, and static instability correction work and to activities that address a significant risk to human safety. These performance measures maximize the overall return to the Nation from the investment in the Civil Works construction program, by focusing on the projects that will provide the best net returns for each $1 invested.

OPERATION AND MAINTENANCE PROGRAM

The facilities owned and operated by, or on behalf of, COE care aging. As stewards of this infrastructure, we are working to ensure that its key features continue to provide an appropriate level of service to the American people, a growing challenge in some cases, as proper maintenance is becoming more expensive at many of our projects.

The operation and maintenance (O&M) program for the fiscal year 2013 budget includes $2.53 billion and an additional $134 million under the Mississippi River and Tributaries program with a focus on the maintenance of key commercial navigation, flood and storm damage reduction, hydropower, and other facilities. Specifically, the O&M program supports completed works owned or operated by the COE, including administrative buildings and laboratories. Work to be accomplished includes:

—operation of the locks and dams of the inland waterways;

—dredging of inland and coastal Federal commercial navigation channels;

—operating multiple purpose dams and reservoirs for flood damage reduction, commercial navigation, aquatic ecosystem restoration, hydropower, and related purposes;

—maintenance and repair of the facilities; monitoring of completed storm damage reduction projects along our coasts; and

—general management of Corps facilities and the land associated with these purposes.

REIMBURSABLE PROGRAM

Through the Interagency and Intergovernmental Services Program we help non-Department of Defense (DOD) Federal agencies, State, local, and tribal governments, and other countries with timely, cost-effective implementation of their programs. Rather than develop their own internal workforces to oversee project design and construction, these agencies can turn to COE, which already has these capabilities. Such intergovernmental cooperation is effective for agencies and the taxpayer by using the skills and talents that we bring to our Civil Works and Military Programs missions. The work is principally technical oversight and management of engineering, environmental, and construction contracts performed by private sector firms, and is totally financed by the agencies we service.

We only accept agency requests that we can execute without impacting our Civil Works or Military Programs missions that are consistent with our core technical expertise and that are in the National interest.

Currently, we provide reimbursable support for about 70 other Federal agencies and several State and local governments. Total reimbursement for such work in fis-

cal year 2013 is projected to be $1.6 billion, reflecting the completion of ongoing reimbursable work and an estimated amount for fiscal year 2013.

PLANNING PROGRAM MODERNIZATION

The Corps will continue to implement actions to improve the performance of its Civil Works Planning Program through a planning modernization effort. This effort focuses on how best to prepare, organize, manage, operate, and oversee the planning program to more effectively address 21st century water resources challenges. This means improved project delivery that yields smarter outcomes; improved technical capability of our planners; enhanced collaboration with Federal, tribal, State, local and nongovernment partners; evaluating and enhancing production capability and staffing at Corps Planning Centers of Expertise; and strengthening the objectivity and accountability of our planning efforts. Our improved planning performance will include:

—updated planning guidance and policy;
—streamlined, adaptable planning processes that improve our effectiveness, efficiency, transparency, and responsiveness; and
—enhanced technical capabilities.

In fiscal year 2011, the Corps launched a 2-year National Planning Pilot Program to test these concepts and to develop and refine processes for planning studies across all business lines. This approach will be both sustainable and replicable, which will inform future Civil Works guidance. Seven to nine pilot studies will be executed over the course of this National Planning Pilot Program.

EFFICIENCY AND EFFECTIVENESS OF CORPS OPERATIONS

The Corps always strives to continually improve its investigations, construction, and operations programs' efficiency and effectiveness. In 2013, the Corps will further expand the implementation of a modern asset management program, using a larger portion of its funds for the most important maintenance work, while implementing an energy sustainability program that pursues major efficiencies in the acquisition and operations of its information technology assets, as well as finalizing the reorganization of the Corps' acquisition workforce.

VALUE OF THE CIVIL WORKS PROGRAM TO THE NATION'S ECONOMY AND DEFENSE

COE personnel continue to respond whenever needed to assist during major floods and other natural disasters. The critical work that they perform reduces the risk of damage to people and communities. The budget provides $30 million for preparedness for floods, hurricanes, and other natural disasters, including funding in support of Corps participation of the levee safety and other flood mitigation initiatives, including the Silver Jackets program, with a goal of one in every State, and to provide unified Federal assistance in implementing flood and storm damage reduction solutions.

RESEARCH AND DEVELOPMENT

Civil Works Program research and development provides the Nation with innovative engineering products, some of which can have applications in both civil and military infrastructure spheres. By creating products that improve the efficiency and competitiveness of the Nation's engineering and construction industry and by providing more cost-effective ways to operate and maintain infrastructure, Civil Works program research and development contributes to the national economy and our quality of life.

NATIONAL DEFENSE

Internationally, the U.S. Army Corps of Engineers continues to support the mission to help Iraq and Afghanistan build foundations for democracy, freedom, and prosperity.

We are proud to serve this great Nation and our fellow citizens, and we are proud of the work the Corps does to support America's foreign policy, particularly with our ongoing missions in Afghanistan and Iraq. Men and women from across the Corps—all volunteers and many of whom have served on multiple deployments—continue to provide critical support to our military missions there and humanitarian support to the citizens of those nations. Currently, 885 Corps employees (both civilian and military) are deployed in Iraq and Afghanistan. Since these deployments began, the Corps has completed more than 9,000 civilian and military projects that were managed by the Corps in support of U.S. and Coalition efforts in those countries.

In Iraq, we completed a more than $15 billion construction program and in Afghanistan we have constructed $5 billion worth of work through fiscal year 2011. By the end of 2014 we will complete another $10 billion, for a total Afghanistan program of $15 billion. This critical infrastructure and our capacity building efforts will play a key role in ensuring stability and security for these nations.

CONCLUSION

The fiscal year 2013 budget represents a continuing, fiscally prudent investment in the Nation's water resources infrastructure and in the restoration of its aquatic ecosystems. COE is committed to change that ensures an open, transparent, and performance-based Civil Works program, while remaining focused on consistently delivering innovative, resilient, risk-informed solutions to the Armed Forces and the Nation.

Thank you, Madam Chairman and members of subcommittee. This concludes my statement.

DEPARTMENT OF THE INTERIOR

BUREAU OF RECLAMATION

STATEMENT OF HON. ANNE CASTLE, ASSISTANT SECRETARY FOR WATER AND SCIENCE

Senator FEINSTEIN. Secretary Castle, please.

Ms. CASTLE. Thank you. Madam Chair, Ranking Member Alexander, and members of the subcommittee, I appreciate the opportunity to talk to you today about the water-related programs of the Department of the Interior and the 2013 budget.

Commissioner Connor is going to address the specifics of the Bureau of Reclamation budget, and I'm going to talk about some of Interior's overall programs to address water challenges in the West and contribute to the development of renewable energy that are contained in the budget.

It's well known that we're facing unprecedented pressure on our water supplies. And that's all across the country, but it's particularly in the Western United States. We've got population growth, aging infrastructure, and increased demand for water to support domestic energy development.

We have increased recognition of environmental needs. We have changing climate. And all of those are challenging already scarce water supplies. This Administration puts a very high priority on addressing these water challenges.

Interior's WaterSMART Program (Sustain and Manage America's Resources for Tomorrow) Program is designed to do that. It's designed to help secure and stretch our water supplies and to provide tools to water managers that allow them to work toward sustainability.

Reclamation proposes to fund the WaterSMART Program at $54 million. The WaterSMART Program includes our WaterSMART grants that are funded at $21.5 million, the Basin Studies program funded at $6 million, and the Title XVI Recycling and Reuse projects that are funded at a little more than $20 million.

The U.S. Geological Survey (USGS) also has $21 million in the 2013 budget requested for WaterSMART programs and that's primarily for the water availability and use assessment. These WaterSMART programs have a very real and a very positive impact.

We have set the goal of enabling the saving of 730,000 acre-feet over the 4 years from 2010 to 2013. That's as much water as the San Diego County Water Authority uses to serve all of its customers for 1 year.

We're on track to meet that goal. With our programs in 2010 and 2011, we've enabled the savings of almost 488,000 acre-feet, and that number is right around the annual use for the seven largest cities in the State of Colorado. So we're talking about real water savings.

Another very important focus of the Department of the Interior is our New Energy Frontier initiative that's intended to foster the development of clean and renewable energy to create jobs and to achieve greater energy independence.

And one of the components of the all-of-the-above energy strategy is hydropower. Hydropower is clean, it's efficient, it's flexible, and it's a renewable energy resource.

Reclamation's hydroelectric power plants produce an average of 40 million megawatt hours of electricity every year. That's enough to meet the needs of more than 3.5 million households.

Last year, Reclamation released an assessment of the hydroelectric potential on its existing dams and reservoirs, and that report highlighted 225 megawatts of hydro-potential with favorable cost-benefit ratios.

In the next couple of weeks, we're going to release Phase 2 of that assessment that looks at the hydropower potential on Reclamation's canals and conduits. And we're anticipating that we'll see another 100 megawatts of potential on those structures.

These facilities with potential are being made available for private development. The Reclamation budget allocates $2 million to increase clean renewable energy generation by integrating renewable technologies into Reclamation projects and continuing the effort to optimize our own hydropower projects so that we can produce more energy using the same amount of water.

PREPARED STATEMENT

Madam Chair, we really appreciate the support that this subcommittee has shown for Reclamation's mission, projects, and those tangible benefits that you mentioned in your opening statement. And we appreciate the support for the mission of the Department.

I look forward to answering your questions.

[The statement follows:]

PREPARED STATEMENT OF ANNE CASTLE

Madame Chair, Mr. Alexander, and members of this subcommittee, I am pleased to appear before you today to discuss the President's fiscal year 2013 budget for the Department of the Interior. I would also like to thank the members of this subcommittee for your efforts to enact a 2012 appropriation, and for your ongoing support for our initiatives.

The fiscal year 2013 budget builds on that strong foundation with $11.5 billion budgeted for the Department of the Interior. The budget demonstrates that we can responsibly cut the deficit, while investing to win the future and sustain the national recovery. Our budget promotes the actions and programs as the President details in his "Blueprint for an America Built to Last"; the budget supports responsible domestic energy development and advances an America's Great Outdoors strategy. The budget continues to advance efforts that you have facilitated in renewable energy and sustainable water conservation, cooperative landscape conservation, youth in the outdoors, and reforms in our conventional energy programs.

I will discuss the President's fiscal year 2013 budget for the Bureau of Reclamation and the Office of the Central Utah Project Completion Act (CUPCA), including our proposal to reconsolidate the CUPCA Office into Reclamation, and the water-related programs of the United States Geological Survey (USGS). I thank the subcommittee for your continued support of these programs.

INTRODUCTION

Interior's mission—to protect America's natural resources and cultural heritage and honor the Nation's trust responsibilities to American Indians and Alaska Natives—is profound. Interior's people and programs impact all Americans.

The Department of the Interior is the steward of 20 percent of the Nation's lands including national parks, national wildlife refuges, and the public lands. Interior manages public lands and the Outer Continental Shelf, providing access for renewable and conventional energy development and overseeing the protection and restoration of surface-mined lands. Through the Bureau of Reclamation, Interior is the

largest supplier and manager of water in the 17 Western States and provides hydropower resources used to power much of the country. The Department supports cutting edge research in the earth sciences—geology, hydrology, and biology—to inform resource management decisions within Interior and improve scientific understanding worldwide. The Department also helps fulfill the Nation's unique trust responsibilities to American Indians and Alaska Natives and provides financial and technical assistance for the insular areas.

The Department of the Interior makes significant contributions to the Nation's economy. We estimate that it supports more than 2 million jobs and approximately $363 billion in economic activity each year. Visits to our national parks, cultural and historic sites, refuges, monuments and other public lands contribute more than $47 billion in economic activity from recreation and tourism. The American outdoor industry estimates 1 in 20 U.S. jobs is in the recreation economy. Conventional and renewable energy produced on Interior lands and waters results in about $230 billion in economic benefits each year, and the water managed by Interior is a major contributing factor to more than $40.2 billion in agriculture.

2011 ACCOMPLISHMENTS

Three years ago, Secretary Salazar set Interior on a course to create a comprehensive strategy to advance a new energy frontier, tackle the impacts of a changing landscape, improve the sustainable use of water, engage youth in the outdoors, and improve the safety of Indian communities. These priority goals integrate the strengths of the Department's diverse bureaus and offices to address key challenges of importance to the American public. Interior has been making progress in these areas, including:

—In 2011, the Department of the Interior generated a total of $13.2 billion in receipts benefitting the U.S. Treasury—from a combination of royalties, rents and bonuses from mineral, timber, and other natural resource development. Of the total receipts generated by Interior in 2011, $11.3 billion was collected from energy production on public lands, tribal lands, and Federal offshore areas—a $2 billion increase over the previous year—with receipts disbursed among Federal, State, and tribal governments.

—Since March 2009, 29 onshore projects that increased approved capacity for production and transmission of power have been approved, including the first-ever utility scale solar project, five wind projects, and eight geothermal projects. The Cape Wind Energy Project, approved for construction and operation, is the first-ever offshore commercial wind operation.

—We continue to make youth a priority, and increased the number of youth employed in conservation activities through Interior or its partners by 31 percent more than the 2009 levels. We launched the YouthGO.gov portal in January 2011, a tool of the Departments of the Interior and Agriculture to provide information on education programs, outdoor activities, and job opportunities.

—Water Sustain and Manage America's Resources for Tomorrow (WaterSMART), established in 2010, has assisted communities in improving conservation, increasing water availability, restoring watersheds, resolving longstanding water conflicts, addressing the challenges of climate change, and implementing water rights settlements. The WaterSMART grant program has provided more than $85 million in funding to non-Federal partners, including tribes, water districts, and universities. In 2011, we provided $33 million in funding for 82 WaterSMART grant projects.

—The year 2011 was the second year of a 2-year pilot at four reservations to conduct expanded community policing, equip and train the law enforcement cadre, partner with the communities to organize youth groups and after school programs, and closely monitor results. The results exceeded expectations with a 35 percent overall decrease in violent crime in the four communities. Information about the four reservations is being analyzed, and the program will be expanded in 2013 to an additional two communities.

—In December 2011, the President hosted the third White House Tribal Nations Conference bringing together tribal leaders from across the United States; we are improving the Nation-to-Nation relationship with 565 tribes.

—The Department advanced key priorities and strategic goals that will improve the conservation and management of natural and cultural resources into the future.

—Interior and its Federal, State, and tribal partners have created a national network of 22 Landscape Conservation Cooperatives (LCCs) and eight Climate Science Centers (CSCs) in order to address an increasing variety of conservation challenges.

—In the spirit of America's Great Outdoors, we welcomed new national wildlife refuges in Kansas, the Dakotas, Pennsylvania, and Florida at the headwaters to the Everglades. These refuges mark a new era of conservation for the Department, one that is community-driven, science-based, and takes into account entire ecosystems and working landscapes.

—The Department worked with others to implement short-term measures and develop a long-term action plan to help address water supply and environmental challenges in the California Bay-Delta area, invested more than $600 million in major water projects over the past 3 years, and moved forward on long-standing water availability issues in the Colorado River Basin.

FISCAL RESPONSIBILITY

Interior's fiscal year 2013 budget must be viewed in the context of the difficult fiscal times facing the Nation. This budget is responsible and austere. Interior's $11.5 billion budget funds important investments by eliminating and reducing lower priority programs, deferring project start-ups, reducing duplication, streamlining operations, and capturing savings. It maintains funding levels for core functions that are vital to uphold stewardship responsibilities and sustain key initiatives. The fiscal year 2013 budget includes $10.5 billion for programs funded by the Interior, Environment, and Related Agencies appropriation. The fiscal year 2013 budget for Reclamation, including the CUPCA, is $1 billion in current appropriations, $42.4 million below the 2012 enacted level.

Interior's fiscal year 2013 budget reflects many difficult budget choices, cutting worthy programs and advancing efforts to shrink Federal spending. Staffing reductions are anticipated in some program areas, which will be achieved through attrition, and buy-outs in order to minimize the need to conduct reductions in force to the greatest extent possible. These reductions are a necessary component of maintaining overall fiscal restraint while allowing us to invest additional resources in core agency priorities.

GROWING THE ECONOMY OUTDOORS

The President's "Blueprint" recognizes the economic potential of renewable energy development. The economic benefits could be particularly significant in America's remote and rural places near public lands. The Department's 2010 estimates identified nearly $5.5 billion in economic impacts associated with renewable energy activities, a growing economic sector that supports high-paying jobs.

Interior is at the forefront of the Administration's comprehensive effort to spur job creation by making the United States the world's top travel and tourism destination. In a recent statement, President Obama cited Department of Commerce figures showing that in 2010, international travel resulted in $134 billion in U.S. exports.

The President has asked Secretary Salazar to co-chair an interagency task force with Commerce Secretary Bryson to develop a National Travel and Tourism Strategy to expand job creation by promoting domestic and international travel opportunities throughout the United States. A particular focus of the Task Force will be on strategies for increasing tourism and recreation jobs by promoting visits to the Nation's national treasures.

According to a departmental study, in 2010, 437 million visits were made by American and international travelers to these lands, contributing $47.9 billion in economic activity and 388,000 jobs. Eco-tourism and outdoor recreation also have an impact on rural economies, particularly in Arizona, California, Colorado, Florida, Nevada, North Carolina, Oregon, Utah, and Wyoming.

AMERICA'S GREAT OUTDOORS

The Administration continues to listen to the American public as they ask for protection and restoration of our outdoors and to expand opportunities for recreation through partnerships with States and others and the promotion of America's parks, refuges, and public lands. An important element in this effort is the restoration of our rivers to both protect the environmental benefits and to secure future water supplies. By encouraging innovative partnerships in communities across the Nation, the Administration is expanding access to rivers and trails, creating wildlife corridors, and promoting conservation while working to protect historic uses of the land including ranching, farming, and forestry. As part of America's Great Outdoors, Interior is supporting 101 signature projects in all States across the country to make parks accessible for children, create great urban parks and community green spaces, restore rivers, and create recreational blueways to power economic revitalization. Projects were selected in concert with governors, tribal leaders, private landowners, and other stakeholders and were evaluated based on the level of local support, the

ability of States and communities to leverage resources, and the potential to conserve important lands and promote recreation.

The 2013 America's Great Outdoors initiative focuses on investments that will lead to healthy lands, waters, and resources while stimulating the economy—goals that are complementary. Through strategic partnerships, Interior will support and protect historic uses of lands, restore lands and resources, protect and interpret historic and cultural resources, and expand outdoor recreation opportunities. All of these activities have significant economic benefits in rural and urban communities.

Interior's fiscal year 2013 budget continues to better equip land and resource managers with the tools they need to effectively conserve resources in a rapidly changing environment. Significant changes in water availability, longer and more intense fire seasons, invasive species, and disease outbreaks are creating challenges for resource managers and impacting the sustainability of resources on public lands. These changes result in bark beetle infestations, deteriorated range conditions, and water shortages that negatively impact grazing, forestry, farming, as well as the status of wildlife and the condition of their habitats. Many of these problems are caused by or exacerbated by climate change.

The Department's budget includes $6 million for Reclamation's Basin Studies program, which funds Reclamation's partnerships with State and local entities to initiate comprehensive water supply and demand studies in the West.

Reclamation continues to participate in and support to the Desert and Southern Rockies Landscape Conservation Cooperatives. These LCCs are partnerships between Interior and other Federal agencies, States, tribes, nongovernmental organizations, and other stakeholders, to bring together science and sustainable resource conservation activities to develop science-based solutions to on-the-ground challenges from a changing environment within an ecological region or "landscape." The LCCs leverage the resources and expertise of the partners and work across jurisdictional barriers to focus on natural resource issues specific to a particular ecosystem or landscape.

INVESTING IN OUR YOUTH

Furthering the youth and conservation goals of the America's Great Outdoors initiative, the fiscal year 2013 budget proposes to continue engaging youth by employing and educating young people from all backgrounds.

Interior is uniquely qualified to engage and educate young people in the outdoors and has programs that establish connections for youth ages 18 to 25 with natural and cultural resource conservation. These programs help address unemployment in young adults and address health issues by encouraging exercise and outdoor activities. For example, Interior is taking part in the First Lady's Let's Move initiative to combat the problem of childhood obesity. Interior has longstanding partnerships with organizations such as the 4–H, the Boy Scouts, the Girl Scouts, the Youth Conservation Corps, and the Student Conservation Association. These programs leverage Federal investments to put young people to work, build a conservation ethic, and educate the next generation of land and water stewards.

WATER CHALLENGES

Interior is working to address the 21st century pressures on the Nation's water supplies. Population growth, aging water infrastructure, changing climate, rising energy demands, impaired water quality, and environmental needs are among the challenges to already scarce supplies. Water shortage and water use conflicts have become more commonplace in many areas of the United States, even in normal water years. As competition for water resources grows, the need for information and tools to aid water resource managers also grows. Traditional water management approaches no longer meet today's needs.

In 2010, the Secretary issued a Secretarial Order establishing the WaterSMART program which embodies a new water sustainability strategy. WaterSMART coordinates Interior's water sustainability efforts, creates a clearinghouse for water conservation best practices and implements a Department-wide water footprint reduction program to reduce consumption of potable water by 26 percent by 2020.

Reclamation proposes to fund the rebased WaterSMART at $53.9 million, $6.8 million above 2012 enacted levels. The three ongoing WaterSMART programs include:

—the WaterSMART Grant program funded at $21.5 million;

—Basin Studies funded at $6 million; and

—the title XVI Water Reclamation and Reuse program funded at $20.3 million.

The rebasing adds the existing Water Conservation Field Services program, funded at $5.9 million, and participation by Reclamation in the Cooperative Watershed

Management program, funded at $250,000. WaterSMART is a joint effort with the USGS. The USGS fiscal year 2013 budget includes $21 million, an increase of $13 million more than the 2012 enacted level, for the USGS WaterSMART Availability and Use Assessment program.

In November 2011, the Department adopted the WaterSMART Strategic Implementation Plan, which discusses the coordination of activities across bureaus, and the contributions they will make in providing Federal leadership toward a sustainable water resources future. In December 2011, we released a report on a pilot project within the Colorado River Basin. This report represents a snapshot of Interior's WaterSMART activities within the Basin and demonstrates the diversity and significance of several ongoing Federal, State, tribal, local, and nongovernmental cooperative efforts that are underway. It also demonstrates the effectiveness of the WaterSMART program, and the importance of these coordinated efforts to the sustainability of resources in the Colorado River Basin.

Other significant programs and highlights specific to Reclamation include:

—We are in dialogue with Mexico on the management of the Colorado River. We have ongoing efforts to improve our management of resources on the Colorado River, from renewable hydropower development near the headwaters to a pilot program of desalination near the Mexican border. We are completing environmental compliance on a new protocol for high-flow releases from Glen Canyon Dam to improve and protect downstream resources. We have begun the process for updating the long-term plan of operations for Glen Canyon Dam to incorporate the scientific advancements that have occurred since the last plan was finalized, more than 15 years ago.

—We are actively pursuing workable solutions to regional issues such as in the California Bay-Delta. The Bay-Delta is a source of drinking water for 25 million Californians and sustains about $400 billion in annual economic activity, including a $28 billion agricultural industry and up until recently supported a thriving commercial and recreational fishing industry. Our efforts in the Bay-Delta are focused on co-leading an inter-agency effort with the Council on Environmental Quality (CEQ) to implement the December 2009 Interim Federal Action Plan for the California Bay-Delta. In coordination with five other Federal agencies, we are leveraging our activities to work in concert with the State and local authorities to encourage the smarter supply and use of water, ensure healthy ecosystems and water quality, help deliver drought relief services, and ensure integrated flood risk management. Over the past 3 years, we have invested more than $600 million in water projects in California. This funding supports the co-equal goals of providing a more reliable water supply for California and protecting, restoring, and enhancing the Bay-Delta ecosystem. We have also, in close coordination with NOAA and the State of California, worked on the California Bay-Delta Conservation Plan, a long-term plan aimed at restoring both reliable water supplies and a healthy Bay-Delta ecosystem.

On February 22, 2012, we announced the initial Water Supply Allocation for Central Valley Project (CVP) water users. Even though 2011 was a wet water year that allowed reservoirs to fill and provided abundant flows in the Sacramento and San Joaquin river systems, the exceedingly dry conditions earlier this winter pose risks to threatened and endangered fish species, as well as to the water supplies of the CVP. Interior, Reclamation, State and local agencies, and other interested parties are working together to identify and secure additional water supplies and create opportunities that will aid water management in California. We will continue to work with our Federal, State, and local partners to improve water supply reliability while addressing significant ecological issues. Reclamation is continuing to update the forecast to provide the most current information to its stakeholders.

INNOVATION THROUGH SCIENCE

Sustainable stewardship of natural resources requires strong investments in research and development (R&D) in the natural sciences. Research and development funding is increased by $64 million in the Department's fiscal year 2013 budget, with R&D funding increases among all of the Interior bureaus, and particularly USGS with a $51 million increase to fund R&D priorities in disaster response, hydraulic fracturing, coastal and ocean stewardship, and ecosystem restoration. The fiscal year 2013 budget includes R&D funding of $10.1 million for Reclamation to address climate change adaptation, control invasive quagga mussels, improve desalination technologies, and promote renewable energy development.

NEW ENERGY FRONTIER

The fiscal year 2013 budget continues Interior's New Energy Frontier initiative to create jobs and achieve greater energy independence. The Administration's blueprint for energy security focuses on safely and responsibly developing our domestic energy resources, including both conventional and renewable resources. The Department plays an important role by providing opportunities for safe and responsible development on public lands and on the U.S. Outer Continental Shelf.

HYDROPOWER

Hydropower is a very clean and efficient way to produce energy and is a renewable resource. Each kilowatt-hour of hydroelectricity is produced at an efficiency of more than twice that of any other energy source. Further, hydropower is very flexible and reliable when compared to other forms of generation. Reclamation has nearly 500 dams and 10,000 miles of canals and owns 58 hydropower plants, 53 of which are operated and maintained by Reclamation. On an annual basis, these plants produce an average of 40 million megawatt (MW) hours of electricity, enough to meet the entire electricity needs of more than 3.5 million households on average.

Reclamation and Federal Energy Regulatory Commission (FERC) are parties to a Memorandum of Understanding (MOU), signed in 1992, that addresses the establishment of processes for early resolution of issues related to the timely development of non-Federal hydroelectric power at Bureau of Reclamation facilities. Reclamation and FERC recently met to discuss how to improve the timeliness of the processes developed in that MOU and resolution of authority issues.

The Department signed a MOU with the Department of Energy and COE on March 24, 2010 to increase communication between Federal agencies and strengthen the long-term relationship among them to prioritize the generation and development of sustainable hydropower. This Administration is committed to increasing the generation of environmentally sustainable, affordable hydropower for our national electricity supplies in as efficient a manner as possible. Activities under this MOU have been ongoing, and have resulted in accomplishments such as assessments of potential hydropower resources on Federal and non-Federal lands, a collaborative basin-scale pilot project in Oregon, and grant opportunities for R&D of new technologies. An example of its on-going efforts to maximize potential generation at existing Federal facilities, Reclamation has assessed the potential for developing hydropower at existing Reclamation facilities and by utilizing low-head hydroelectric generating capacity on Reclamation-owned canals and conduits. A report on this assessment will be released within the next few weeks.

The budget allocates $2 million to increase clean renewable energy generation by exploring how renewable technologies including solar, small hydropower, and hydrokinetics can be integrated into Reclamation projects; by continuing the effort to optimize Reclamation hydropower projects to produce more energy with the same amount of water; by investigating hydro pump-storage projects that can help integrate large amounts of variable renewable resources such as wind and solar into the electric grid; and by working with tribes to assist them in developing renewable energy sources.

INDIAN LAND AND WATER SETTLEMENTS

Interior's fiscal year 2013 budget includes $82.8 million in the Bureau of Reclamation and Bureau of Indian Affairs (BIA) to implement land and water settlements.

The Department has a unique responsibility to American Indians and Alaska Natives, which is upheld by Interior's support for a robust Government-to-government relationship as demonstrated by a new comprehensive and transparent consultation policy that ensures there is a strong, meaningful role for tribal governments.

In 2011, Interior started planning to implement the landmark $3.4 billion settlement of the *Cobell* v. *Salazar* lawsuit, and appointed a Secretarial Commission on Trust Administration and Reform to oversee implementation of the Settlement agreement. The Commission is undertaking a forward-looking, comprehensive evaluation of Interior's management of nearly $4 billion in American Indian trust funds—with the goal of making trust administration more transparent, responsive, customer focused, and accountable.

The Claims Resolution Act of 2010 settled the *Cobell* lawsuit and four settlements that will provide permanent water supplies and economic security for the Taos Pueblo of New Mexico and Pueblos of New Mexico named in the *Aamodt* case, the Crow Tribe of Montana, and the White Mountain Apache Tribe of Arizona. The agreements will enable construction and improvement of reservation water systems, irrigation projects, a regional multipueblo water system, and codify water-sharing

arrangements between Indian and neighboring communities. The primary responsibility for constructing water systems associated with the settlements was given to Reclamation; and BIA is responsible for the majority of the trust funds.

Reclamation is budgeting $21.5 million in 2013 for the continued implementation of these four settlements and $25 million for the Navajo-Gallup Water Supply project. Reclamation is proposing the establishment of an Indian Water Rights Settlements account to assure continuity in the construction of the authorized projects and to highlight and enhance transparency.

CENTRAL UTAH PROJECT

CUPCA, titles II–VI of Public Law 102–575, provides for completion of the Central Utah Project (CUP) by the Central Utah Water Conservancy District (District). The Act also authorizes funding for fish, wildlife, and recreation mitigation and conservation; establishes an account in the Treasury for deposit of these funds and other contributions; establishes the Utah Reclamation Mitigation and Conservation Commission to coordinate mitigation and conservation activities; and provides for the Ute Indian Rights Settlement.

The fiscal year 2013 budget proposes to reconsolidate the CUPCA Office and program into the Bureau of Reclamation. This consolidation is part of broader administration efforts to implement good Government solutions to consolidate and streamline activities. The CUP is the only water project within the Department of the Interior not managed by Reclamation. The proposed merger would correct that anomaly, ensuring that these projects receive equal and consistent consideration and treatment. Concerns about Reclamation's previous management and operation of the CUP have been addressed within Reclamation and corrected. The fiscal year 2013 CUPCA budget is $21 million, a decrease of $7.7 million from the 2012 enacted level. Of this amount, $1.2 million will be transferred to the Utah Reclamation Mitigation and Conservation Account for use by the Utah Reclamation Mitigation and Conservation Commission (Mitigation Commission). We propose to maintain both the Central Utah Project Completion and the Utah Reclamation Mitigation and Conservation Accounts for CUPCA appropriations after the proposed consolidation of the CUPCA Office into Reclamation in order to enhance transparency.

The fiscal year 2013 budget includes $17.3 million for use by the District to continue construction of the Utah Lake System facilities and to implement approved water conservation and water management improvement projects. The Act requires a local cost share of 35 percent for projects implemented by the District which increases the effectiveness of the program. The budget for the District includes $7.3 million to fund the designs, specifications, land acquisition, and construction of the Utah Lake System, a decrease of $6.7 million from the 2012 enacted level. The budget also includes water conservation measures at $10 million for construction of the Provo River Canal Enclosure Project, which when completed will provide 8,000 acre-feet of conserved water for endangered fish and convey 30,000 acre-feet of CUP water.

The fiscal year 2013 budget includes $1.2 million for the Mitigation Commission to implement the fish, wildlife, and recreation mitigation and conservation projects authorized in title III ($1 million) and to complete mitigation measures committed to in pre-1992 Bureau of Reclamation planning documents ($200,000), all of which are necessary to allow CUP operations.

Finally, the budget includes $1.2 million for the Program Office for endangered species recovery and operation and maintenance costs associated with instream flows and fish hatchery facilities and $1.3 million for program administration.

CONCLUSION

Thank you for the opportunity to testify on behalf of the President's fiscal year 2013 budget for the Department of the Interior and the Bureau of Reclamation. I want to reiterate my appreciation for the longstanding support of this subcommittee. This budget has fiscal discipline and restraint, but it also includes forward-looking investments. We have a tremendous opportunity to improve the future for all generations with wise investments in healthy lands, clean waters, and expanded energy options.

I look forward to working with you to implement this budget. This concludes my testimony. I am happy to answer any questions that you may have.

Senator FEINSTEIN. Thank you, Madam Secretary.

Commissioner Connor.

STATEMENT OF MICHAEL L. CONNOR, COMMISSIONER

Mr. CONNOR. Yes. Thank you, Madam Chair, Ranking Member Alexander, and members of the subcommittee, for the opportunity to discuss Reclamation's fiscal year 2013 budget request.

The overall request for Reclamation is $1 billion. I have submitted detailed written testimony for the record. The budget reflects a comprehensive set of actions and initiatives that support Reclamation's mission as well as hundreds of thousands of jobs in the Western United States.

Reclamation is employing an all-of-the-above strategy in the area of water resources. Certainty and sustainability are primary goals with respect to the use of water resources and require Reclamation to take action on many fronts and our budget proposal was developed with that in mind.

To help meet the water and energy needs of the 21st century, we must continue to maintain and improve existing infrastructure, develop new infrastructure, conserve and make more efficient use of limited water resources, protect the environment, better understand and plan for future challenges, and help clarify the relative rights to use water.

I'll briefly summarize areas of particular interest in our budget. Infrastructure. Overall, the budget supports the need to maintain our infrastructure in safe operating condition. Approximately 52 percent of the water and related resources account is dedicated to operation, maintenance, and replacement (OM&R) activity with 48 percent allocated to resource management and development.

OM&R include the Dam Safety program, Site Security program, and Replacements, Additions, and Extraordinary Maintenance (RAX).

A second priority area is WaterSMART. Secretary Castle summarized our WaterSMART initiative. I'll simply reiterate that WaterSMART is yielding significant results West-wide and demand greatly exceeds available resources at this point in time.

Ecosystem Restoration is a third-priority area. In order to meet Reclamation's mission goals of producing power and delivering water in a sustainable manner, we simply must continue to focus on the protection and restoration of the aquatic and riparian environments affected by our projects.

Specifically, the 2013 request provides substantial funding for a number of restoration programs in California including the Central Valley Project (CVP) Improvement Act, San Joaquin River Restoration, Trinity River Restoration, and Bay-Delta initiatives.

And our ESA Recovery and Compliance Programs have received specific authorization from Congress and also enjoy broad support from diverse interests.

Fourth, Cooperative Landscape Conservation is a Departmental initiative in which Reclamation is actively engaged. We are developing and implementing approaches to understand and effectively adapt to the array of challenges facing Western water management. Reclamation's Basin Studies and Science and Technology programs are key efforts in this area.

Fifth, to support the Department's New Energy Frontier Initiative, the 2013 budget allocates funding to specifically support Rec-

lamation-wide Renewable Energy Initiatives and to collaborate with other entities on renewable energy integration.

Once again, Secretary Castle discussed our efforts in this area and their yielding of significant results and all are part of the President's all-of-the-above strategy for meeting the country's energy needs.

Sixth, and finally, Reclamation has a longstanding commitment to the Secretary's goal of strengthening tribal nations. The 2013 budget supports this goal through a number of activities including fisheries restoration, rural water projects, and the implementation of the new Water Right Settlements.

Reclamation has a large role in implementing settlements and our goals are simple: help tribes realize settlement benefits as quickly as possible; two, ensure certainty in the use of water for tribes and their non-Indian neighbors; and three, promote economic prosperity in Indian country in both the short term and the long term.

PREPARED STATEMENT

Madame Chair, as Secretary Castle mentioned, we greatly appreciate your support for our programs and efforts at the Bureau of Reclamation, and I'm happy to answer questions at the appropriate time.

[The statement follows:]

PREPARED STATEMENT OF MICHAEL L. CONNOR

INTRODUCTION

Thank you Madame Chair, Mr. Alexander, and members of this subcommittee, for the opportunity to discuss with you the President's fiscal year 2013 budget for the Bureau of Reclamation.

I appreciate the time and consideration this subcommittee gives to reviewing and understanding Reclamation's budget and its support for the program. Reclamation works hard to prioritize and define our program in a manner that serves the best interest of the public.

Our fiscal year 2013 budget continues support for activities that, both now and in the future, will deliver water and generate power, consistent with applicable State and Federal law, in an environmentally responsible and cost-effective manner. Overall, our goal is to promote certainty, sustainability, and resiliency for those who use and rely on water resources in the West. Success in this approach will help ensure that Reclamation is doing its part to support the basic needs of communities, as well as provide for economic growth in the agricultural, industrial, energy, and recreational sectors of the economy. In keeping with the President's pledge to reduce spending and focus on deficit reduction, this budget reflects reductions and savings where possible. The fiscal year 2013 budget allows Reclamation to fulfill its core mission, but cost savings have been implemented where possible.

The budget also supports the Administration's and Department of the Interior's (Department) priorities to tackle America's water challenges; promote America's Great Outdoors and Cooperative Landscape Conservation; and support and strengthen tribal nations. The Department will continue the Water Sustain and Manage America's Resources for Tomorrow (WaterSMART) program (with participation from both Reclamation and the United States Geological Survey) and Reclamation's budget reflects that priority.

Reclamation's fiscal year 2013 budget is $1 billion, $42.4 million below the fiscal year 2012 enacted level. Reclamation's budget request is partially offset by discretionary receipts in the Central Valley Project Restoration Fund, estimated to be $39.6 million. The request for permanent appropriations in 2013 totals $174.1 million. The budget proposes the establishment of a new Indian Water Rights Settlement account and a discretionary appropriation for the San Joaquin River Restoration Fund.

As the largest supplier and manager of water in the 17 Western States and the Nation's second largest producer of hydroelectric power, Reclamation's projects and programs are critical to driving and maintaining economic growth in the Western States. Reclamation manages water for agricultural, municipal and industrial use, and provides flood control and recreation for millions of people. According to a June 2011 economic report prepared by the Department, Reclamation activities, including recreation, have an economic contribution of $55 billion, and support nearly 416,000 jobs. Reclamation's 58 hydroelectric power plants generate more than 40 million megawatt hours of electricity to meet the annual needs of more than 3.5 million households and generates nearly $940 million in revenues for the Federal Government. It would take more than 23.5 million barrels of crude oil or about 6.8 million tons of coal to produce an equal amount of energy with fossil fuel. As a result, Reclamation facilities eliminate the production of more than 27 million tons of carbon dioxide that would have been produced by fossil fuel power plants.

The fiscal year 2013 budget allocates funds to projects and programs based on objective, performance-based criteria to most effectively implement Reclamation's programs and its management responsibilities for its water and power infrastructure in the West.

WATER AND RELATED RESOURCES

The fiscal year 2013 budget for Water and Related Resources, Reclamation's principal operating account, is $818.6 million, a decrease of $76.4 million from the fiscal year 2012 enacted level. This decrease is due, in part, to a shift of $46.5 million for the proposed establishment of the Indian Water Rights Settlement account, and $12 million for a discretionary appropriation for the San Joaquin River Restoration Fund.

The fiscal year 2013 budget includes a total of $395.6 million at the project/program level for water, energy, land, and fish and wildlife resource management and development activities. Funding in these activities provides for planning, construction, water sustainability activities, management of Reclamation lands including recreation areas, and actions to address the impacts of Reclamation projects on fish and wildlife.

The budget also provides a total of $423.1 million at the project/program level for the operation, maintenance, and rehabilitation associated with Reclamation's water and power facilities. Reclamation emphasizes safe, efficient, economic, and reliable operation of facilities, ensuring systems and safety measures are in place to protect the facilities and the public. Providing adequate funding for these activities continues to be one of Reclamation's highest priorities.

HIGHLIGHTS OF THE FISCAL YEAR 2013 BUDGET FOR WATER AND RELATED RESOURCES

I would like to share with the subcommittee several highlights of the Reclamation budget including an update on the WaterSMART program, and the Department's priority goal target to enable capability to increase available water supply in the Western United States by 730,000 acre-feet by the end of 2013 based on cumulative savings since 2009.

WaterSMART Program.—The fiscal year 2013 budget continues to focus resources on expanding and stretching limited water supplies in the West to reduce conflict, facilitate solutions to complex water issues, and meet the growing needs of expanding municipalities, domestic energy development, the environment, and agriculture.

Reclamation proposes to fund WaterSMART at $53.9 million, $6.8 million above the fiscal year 2012 enacted level. There are five ongoing WaterSMART programs:

—the WaterSMART Grant program, funded at $21.5 million;

—Basin Studies, funded at $6 million;

—the title XVI Water Reclamation and Reuse program, funded at $20.3 million;

—Water Conservation Field Services program, funded at $5.9 million; and

—the Cooperative Watershed Management program, funded at $250,000.

Reclamation has budgeted $6.5 million to actively engage in developing and implementing approaches to understand, and effectively adapt to landscape-level conservation challenges, including the impacts of climate change on western water management. The Basin Studies program is part of an integrated strategy to respond to changing impacts on the resources managed by Interior, and is a key component of the WaterSMART initiative. In 2013, the Basin Studies program will continue West-wide risk assessments, coordinated through the Department's Landscape Conservation Cooperatives (LCCs) and focus on the threats to water supplies from changing weather patterns. Reclamation will continue to participate in and lead the Desert and Southern Rockies LCCs. Included within Reclamation's Science and Technology program is water resources research targeting improved capability for

managing water resources under multiple drivers, including a changing climate. This research agenda will be collaborated and leveraged with capabilities of the Interior Climate Science Centers.

Supporting Renewable Energy Initiatives.—To support the Administration's New Energy Frontier initiative, and the Renewable Energy priority goal, the 2013 Reclamation budget allocates $2 million to provide support for the renewable energy initiative and to collaborate with other agencies and entities on renewable energy integration. The funds will be used to explore how other renewable energy technologies can be integrated into Reclamation projects. Reclamation will continue the effort to facilitate the development of sustainable hydropower; optimize Reclamation hydropower projects to produce more energy with the same amount of water; explore hydro pump-storage projects that can help integrate large amounts of variable renewable resources such as wind and solar into the electric grid; and work with tribes to assist them in developing renewable energy sources. These important projects can help produce cleaner, renewable energy.

Supporting Tribal Nations.—Reclamation has a longstanding commitment to realizing the Secretary's goal to strengthen tribal nations. The fiscal year 2013 budget continues to support that goal through a number of activities and projects ranging from ecosystem restoration to rural water infrastructure and the implementation of water rights settlement. The budget includes $6.4 million for the Native American Affairs Program to continue support of Reclamation activities with Indian tribes. These activities include providing technical support for Indian water rights settlements and assisting tribal governments to develop, manage, and protect their water and related resources. Also, the office provides policy guidance for Reclamation's work with tribes throughout the organization in such areas as the Indian trust responsibility, Government-to-government consultations, and Indian self-governance and self-determination.

Rural Water Projects.—The Congress has specifically authorized Reclamation to undertake the design and construction of seven projects intended to deliver potable water supplies to specific rural communities in the West. Reclamation has been working diligently to advance the completion of all of its authorized rural water projects consistent with current fiscal and resource constraints with the goal of delivering potable water to tribal and non-tribal residents within the rural water project areas. In support of rural communities, the fiscal year 2013 budget includes a funding increase to advance the construction of rural water projects.

Reclamation has proposed $69.6 million in funding for Reclamation's seven ongoing authorized rural water projects. This funding reflects the high priority that the Department and Reclamation place on improving the circumstances of rural economies and those living in rural economies. Tribal and non-tribal people will greatly benefit by this demonstrated commitment to rural water construction.

Specifically, the budget includes $18 million for operation and maintenance of tribal features for two projects—the Mni Wiconi Project and the Garrison Diversion Unit of the Pick-Sloan Missouri Basin Program—and $51.6 million in construction funding combined for the seven projects:

—Garrison Diversion Unit, (North Dakota);
—Mni Wiconi Rural Water System, (South Dakota);
—Jicarilla Apache Reservation Rural Water System, (New Mexico);
—Lewis and Clark Rural Water System, (South Dakota, Iowa, Minnesota);
—Fort Peck Reservation/Dry Prairie Rural Water System, (Montana);
—Rocky Boys/North Central Montana Rural Water System, (Montana); and
—Eastern New Mexico Water Supply Project, (New Mexico).

The fiscal year 2013 budget includes sufficient funding to complete construction of the Mni Wiconi Project.

Aging Infrastructure.—In recognition of the growing need to address aging infrastructure associated with Reclamation projects, the 2013 Reclamation budget includes $7.3 million for a Reclamationwide Aging Infrastructure program that will make use of recently enacted authorities such as the aging infrastructure program enacted in Public Law 111–11. This funding will address the infrastructure needs of Reclamation projects, which is essential for maintaining system reliability and safety and to support sustainable water management by promoting established asset management practices. This budget will provide additional funding for an increased number of extraordinary maintenance and rehabilitation activities which will enhance the ability of Reclamation and its operating entities to preserve the structural safety of project facilities, while continuing delivery of project benefits.

Dam Safety Program.—A total of $87.5 million is budgeted for Reclamation's Safety of Dams program. This includes $67 million directed to specific dam safety modifications; of which $15 million is for work at Folsom Dam. Funding also includes

$19.4 million for safety evaluations of existing dams and $1.1 million to oversee the Interior Department's Safety of Dams program.

Site Security.—A total of $26.9 million is budgeted for Site Security to ensure the safety and security of the public, Reclamation's employees, and key facilities. This funding includes $5.9 million for physical security upgrades at high-risk critical assets and $21 million to continue all aspects of bureau-wide security efforts.

This includes law enforcement, risk and threat analysis, personnel security, information security, risk assessments and security-related studies, and guards and patrols.

Ecosystem Restoration.—In order to meet Reclamation's mission goals of generating power and managing water in a sustainable manner for the 21st century, one focus of its programs must be the protection and restoration of the aquatic and riparian environments affected by its operations. Ecosystem restoration involves a large number of activities, including Reclamation's Endangered Species Act recovery programs, which directly address the environmental aspects of the Reclamation mission. These programs also implement important river restoration efforts that support the America's Great Outdoors initiative.

The fiscal year 2013 budget provides $128 million to operate, manage, and improve the Central Valley Project. This amount includes $16.1 million for the Trinity River Restoration program, and $2.9 million for the Red Bluff fish passage to complete postconstruction activities of the new pumping plant and fish screen, which will be operational in the spring of 2012, as well as continued biological and research and monitoring activities.

The budget provides $27.2 million for Lower Colorado River Operations to both fulfill the role of the Secretary as water master for the Lower Colorado River and continue the multispecies conservation program, which is $17.8 million of that total, and provides long-term Endangered Species Act compliance for the river operations.

The budget includes $18.9 million for Endangered Species Act Recovery Implementation programs, which includes $8 million in the Great Plains Region to implement the Platte River Endangered Species Recovery Implementation program. This funding will facilitate the implementation of measures to help recover four endangered or threatened species, thereby enabling existing water projects in the Platte River Basin to continue operations, as well as allowing new water projects to be developed in compliance with the Endangered Species Act. This program also includes $8.4 million for the Upper Colorado and San Juan River Endangered Fish Recovery programs. This funding will continue construction of a system that automates canal operations to conserve water by matching river diversions with actual consumptive use demands and redirecting the conserved water to improve in-stream flows. The budget also provides $18 million for Columbia/Snake River Salmon Recovery. This funding will be used for the implementation of required Biological Opinion actions including extensive hydro actions, plus tributary habitat and hatchery initiatives as off-sets for the impacts of Federal Columbia River Power System operations.

The fiscal year 2013 budget includes $7.1 million for Reclamation to move forward with actions that address water supply enhancement and restoration of natural resources that support the Klamath Basin Restoration Agreement and are authorized under existing law. The Klamath Basin Restoration Agreement includes restoration and related activities to reduce conflicts over water between the Upper and Lower Klamath Basins.

The results of the Klamath Dam Removal and Sedimentation Studies conducted over the past several years will be used in discussions over whether or not removing PacifiCorp's four dams on the Lower Klamath River is in the public interest and advances restoration of the Klamath River fisheries. No funds are budgeted in 2013 for this effort.

The fiscal year 2013 budget includes $22.5 million for the Middle Rio Grande project. Within this amount $8.4 million supports the acquisition of supplemental non-Federal water for Endangered Species Act efforts and low flow conveyance channel pumping into the Rio Grande during the irrigation season. Further, funding will be used for recurring river maintenance necessary to ensure uninterrupted, efficient water delivery to Elephant Butte Reservoir, reduced risk of flooding, as well as water delivery obligations to Mexico.

The Yakima River Basin Water Enhancement project budget is $9.5 million, which will continue funding grants to implement conservation measures that stretch water supplies and improve fishery conditions.

CENTRAL UTAH PROJECT COMPLETION ACT

The fiscal year 2013 budget proposes to consolidate the Central Utah Project Completion Act (CUPCA) program with the Bureau of Reclamation, while maintaining

a separate appropriations account for CUPCA. This consolidation is part of broader administration efforts to implement good Government solutions to consolidate and streamline activities when possible. The proposed merger would ensure that all major Federal water projects within Interior are managed by Reclamation, ensuring that these projects receive equal consideration and treatment. The fiscal year 2013 CUPCA budget is $21 million, a decrease of $7.7 million from the fiscal year 2012 enacted level. Of this amount, $1.2 million will be transferred to the Utah Reclamation Mitigation and Conservation Account for use by the Mitigation Commission.

CENTRAL VALLEY PROJECT RESTORATION FUND

The fiscal year 2013 budget includes $39.9 million for the Central Valley Project Restoration Fund (CVPRF), a decrease of $13.2 million from the fiscal year 2012 enacted level. This budget is indexed to 1992 price levels and determined on the basis of a 3-year rolling average. This budget is offset by collections estimated at $39.6 million from mitigation and restoration charges authorized by the Central Valley Project Improvement Act (CVPIA). The fund supports a number of programs authorized by the CVPIA, including anadromous fish restoration and the acquisition and delivery of water to State and Federal wildlife refuges.

CALIFORNIA BAY-DELTA RESTORATION

The fiscal year 2013 budget includes $36 million for CALFED, pursuant to the CALFED Bay-Delta Authorization Act, a decrease of $3.7 million from the 2012 enacted level. The budget will support implementation of the Bay Delta Conservation Plan, under the following new program activities—$1.9 million for a Renewed Federal-State Partnership, $6.6 million for Smarter Water Supply and Use, and $27.6 million for actions that address the Degraded Bay-Delta Ecosystem.

SAN JOAQUIN RIVER RESTORATION FUND

The fiscal year 2013 budget funds activities consistent with the settlement of *Natural Resources Defense Council* v. *Rodgers* as authorized by the San Joaquin River Restoration Settlement Act. The Act included a provision establishing the San Joaquin River Restoration Fund to implement the provisions of the Settlement. The Settlement's two primary goals are to restore and maintain fish populations, and restore and avoid adverse water impacts. Under the Settlement, the legislation provides for approximately $2 million in annual appropriations from the Central Valley Project Restoration Fund for this purpose, as well as permanent funds of $88 million. The legislation also authorized appropriations and Reclamation proposes $12 million of discretionary funds for the San Joaquin Restoration Fund account in 2013.

INDIAN WATER RIGHTS SETTLEMENTS

The fiscal year 2013 budget includes $46.5 million in the proposed Indian Water Rights Settlement account. Of this amount, $21.5 million is for implementation of the four settlements included in the Claims Resolution Act of 2010. These settlements will deliver clean water to the Taos Pueblo of New Mexico, the Pueblos of New Mexico named in the Aamodt case, the Crow Tribe of Montana, and the White Mountain Apache Tribe of Arizona. Reclamation is proposing the establishment of an Indian Water Rights Settlements account to assure continuity in the construction of the authorized projects and to highlight and enhance transparency in handling these funds.

In addition to the four settlements, the account also budgets $25 million for the on-going Navajo-Gallup Water Supply Project (authorized in title X of Public Law 111–11). The total for Reclamation's implementation of Indian Water Rights Settlements in 2013 is $106.5 million, $46.5 million in discretionary funding and $60 million in permanent authority, which is provided in title VII of the Claims Resolution Act.

POLICY AND ADMINISTRATION

The fiscal year 2013 budget for the Policy and Administration appropriation account, the account that finances Reclamation's central management functions, is $60 million.

RESEARCH AND DEVELOPMENT

Reclamation's Science and Technology Program focuses on a range of solutions for supporting the bureau's capability to manage, conserve, and expand water supplies.

This year Reclamation's budget includes $13 million to support research and development programs which give the highest priority to address the impacts of drought and climate change; mitigation of invasive species such as zebra and quagga mussels; creating new water supplies through advanced water treatment; and advance renewable energy development on Reclamation lands.

PERMANENT APPROPRIATIONS

The total permanent appropriation in 2013 of $174.1 million includes $111.1 million for the Colorado River Dam Fund and $60 million for Reclamation's Indian Water Rights Settlements account.

CAMPAIGN TO CUT WASTE

Over the last 2 years, the Administration has implemented a series of management reforms to curb growth in contract spending, terminate poorly performing information technology projects, deploy state-of-the-art fraud detection tools, focus agency leaders on achieving ambitious improvements in high-priority areas, and open Government up to the public to increase accountability and accelerate innovation.

In November 2011, President Obama issued an Executive order reinforcing these performance and management reforms and the achievement of efficiencies and cost-cutting across the Government. This Executive order identifies specific savings as part of the Administration's Campaign to Cut Waste to achieve a 20-percent reduction in administrative spending from 2010 to 2013. Each agency was directed to establish a plan to reduce the combined costs associated with travel, employee information technology devices, printing, executive fleet efficiencies, and extraneous promotional items and other areas.

The Department of the Interior's goal is to reduce administrative spending by the end of 2013, $207 million from 2010 levels. To contribute to that goal, the Bureau of Reclamation is targeted to save $13.5 million by the end of 2013.

FISCAL YEAR 2013 PRIORITY GOAL FOR WATER CONSERVATION

Priority goals are a key element of the President's agenda for building a high-performing Government. The priority goals demonstrate that they are a high value to the public or that they reflect achievement of key departmental milestones. These goals focus attention on initiatives for change that have significant performance outcomes which can be clearly evaluated, and are quantifiable and measurable in a timely manner. Reclamation's participation in the Water Conservation priority goal helps to achieve these objectives.

Reclamation's water conservation efforts are critical to sustain the economy, environment, and culture of the American West. Competition for finite water supplies is increasing because of population growth, ongoing agricultural demands, and increasingly evident environmental needs. With increased emphasis on domestic energy development, additional pressure is placed on limited water supplies, as significant amounts of water may be required for all types of energy development. At the same time, climate change, extended droughts, and depleted aquifers are impacting water supplies and availability.

In response to these demands, by the end of 2013, Reclamation will enable capability to increase available water supply for agricultural, municipal, industrial, and environmental uses in the Western United States by 730,000 acre-feet cumulatively since 2009 through its conservation-related programs, such as water reuse and recycling (title XVI), and WaterSMART grants.

Moreover, Reclamation's Water Conservation program addresses a range of other water supply needs in the West. It plays a significant role in restoring and protecting freshwater ecosystems consistent with applicable State and Federal law, enhancing management of our water infrastructure while mitigating for any harmful environmental effects, and understanding and responding to the changing nature of the West's limited water resources.

Finally, the fiscal year 2013 budget demonstrates Reclamation's commitment to meeting the water and power needs of the West in a fiscally responsible manner. This budget continues Reclamation's emphasis on managing those valuable public resources. Reclamation is committed to working with its customers, States, tribes, and other stakeholders to find ways to balance and provide for the mix of water resource needs in 2013 and beyond.

CONCLUSION

This completes my statement. I would be happy to answer any questions that you may have at this time.

Senator FEINSTEIN. Thank you very much. And, we'll now proceed with questions and, Mr. Connor, let me thank you for your constant cooperation and helpfulness. It's really been very special.

I just want you to know how much it's appreciated.

Mr. CONNOR. Thank you.

NATOMAS LEVEE IMPROVEMENT PROGRAM

Senator FEINSTEIN. Let me speak for a moment about a deep concern in California.

I've had occasion to speak with people about it. It's the Natomas Project in Sacramento. My understanding is it's 42 miles of levees, 18 have been repaired at a cost of about $320 million by Sacramento Area Flood Control Agency (SAFCA). I've had a chance to talk with Secretary Darcy about it.

It's priority number one for the City of Sacramento. I have been told that a failure could cause a flood which would flood as much as 20 percent of the city. Is that correct?

Ms. DARCY. Madam Secretary, I believe that's accurate.

Senator FEINSTEIN. I know it's not included in what you're proposing. Can you tell us why it hasn't been included?

Ms. DARCY. On this specific project, I may have to defer to the General, because that portion of the project is one that I'm not quite familiar with.

Senator FEINSTEIN. General Temple, could you speak directly into the microphone?

General TEMPLE. Sorry. I'll have to get back to you on the specifics pertaining to that, but I do know that we are diligently working to reduce flood risk in the Central Valley of California, and Natomas is certainly a key part of that.

Senator FEINSTEIN. Right. Well, I think I know what happened. In the 2010 Chief's report, the costs were identified to be $1.1 billion in necessary levee improvements which I understand is a high ticket item.

The question I have is, can the work be segmented? So the work that's most critical, where there are people behind the levee, can be protected. Madam Secretary?

Ms. DARCY. I believe that the portion that you're discussing needs authorization; that portion that you're discussing is currently not an authorized part of the project.

Senator FEINSTEIN. Well, that's interesting. Do you have any information as to why it's not authorized?

Ms. DARCY. That Chief report is still pending; there has been no authorization for any projects since 2007.

Senator FEINSTEIN. So when would authorization be likely?

Ms. DARCY. That Chief's report is pending; it's up to the Congress to authorize the project.

Senator FEINSTEIN. Right. Well, I can tell you this, I think this is the number one levee need in California, and Sacramento is the capital city. It's been confirmed that 20 percent of the city would be flooded. It's a very serious problem and I know we've discussed it.

Anything that can be done, would be very much appreciated, so I just want to publicly bring it to your attention.

HARBOR MAINTENANCE TRUST FUND

I marked a question that I wanted to be sure to ask, and here it is. The subject is harbor maintenance taxes to the States which generated them.

It's my understanding that California ports provide at least 30 percent of the funding that goes into the Harbor Maintenance Trust Fund. If we assume that the trust fund generates $1.5 billion annually, then California annually contributes $450 million into the fund, so how much dredging of eligible harbors and waterways in California were reimbursed by the trust fund in 2011?

Ms. DARCY. I believe the figure, Senator, is $102 million.

Senator FEINSTEIN. $102 million. So, about 5 percent of the annual revenues?

Ms. DARCY. Give or take, close to 5 percent.

Senator FEINSTEIN. So, this is one of the problems that——

Senator GRAHAM. California is getting ripped off.

Senator FEINSTEIN. So, it's a bipartisan issue now. You know, it's only so long that you can tolerate paying this money and not getting back adequate services.

The question I have is, what would be the impact of changing the law in a manner that sets a percentage of the revenues generated in a given State to be returned to that State?

Ms. DARCY. If the law were changed to do that, then the way we would budget for the revenues coming from the fund would be based on that percentage.

Currently, we look at the appropriation that we have from the Harbor Maintenance Trust Fund. This year's President's budget includes $848 million. And what we do with that money now is look at where the needs are around the country.

All ports pay into this Fund, so we look at the needs nationally. We don't do it on an——

Senator FEINSTEIN. I don't disagree with that. I think that's not a bad way to do it. I think it's a responsible way to do it.

On the other hand, we have 50 percent of the container traffic coming into America, coming into LA-Long Beach, and harbor maintenance is a huge issue. Our harbors are decrepit.

So this is my view, and I don't know that others on this subcommittee agree, but if you have a lot of traffic, harbor maintenance also relates to things like the ability to move those containers out.

Intermodal transportation, roadways that are suitable, are also important because the delivery of a container doesn't end at a port. This is something I am really concerned about, and would like to ask your help on in the future as to how we might be able to work this.

I think all of it should go to areas of need. I could make the argument to take all of it for California. Mr. Graham could make a pretty good argument to take it to a certain harbor called Charleston.

Senator GRAHAM. Not all of it.

Senator FEINSTEIN. Not all of it, but he'd take a part of it.

So, I think we've got to work something out that is fair. I'd really like to have your cooperation in trying to do so in the future.

Ms. DARCY. We'd be happy to work with you.

Senator FEINSTEIN. I appreciate that. Thank you very much.

Senator Alexander.

Senator ALEXANDER. Thank you, Madam Chairman.

Well, I think the chairman has roused up an "amen" corner over in the southern section of the subcommittee, and I'd just like to say as we begin this discussion, I have a pretty good idea what Senator Graham's going to be talking about when the time comes.

And I agree with him. We've been having some discussions about—and Secretary Darcy, I think this is mainly aimed for discussion with you—and I'll leave it to him to explore this, I hope that's what he intends to do, is that we need to take a big look at these two trust funds, and think bigger than the funds.

Think about what the needs of our country are, and outline a policy and a program and an idea, and think in a big way about it, and I very much agree with that. And part of that may be recognizing that in some cases, we need a different sort of formula for harbors.

And it may mean we need different ways of collecting money. But my experience in Government is you don't start out by talking about the money, you start out by talking about the policy and the need and what our goals are. And then, it makes it a lot easier to figure out how we pay for it.

Now, in that spirit, let me narrow down something that I think emphasizes the problems with one of the funds, the Inland Waterways Trust Fund. The problem with the Harbor Trust Fund, of course, it has a lot of money in it, we just can't spend it.

INLAND WATERWAYS TRUST FUND

The Inland Waterways Trust Fund doesn't have much money in it, but it has a lot of needs. One of the reasons we don't have money for the dams and locks that it should be funding is this Olmsted Lock on the Ohio River that between last year and this year, according to the budget, increased its costs by $1 billion from $2 billion to $3 billion.

And this one lock is soaking up the money that ought to go for other priority projects. Have you given any consideration to changing the cost sharing on the Olmsted Lock from the current 50–50 to something such as 90 percent from the Treasury and 10 percent from the Inland Waterways Trust Fund so that we could consider other priority projects?

Ms. DARCY. No, Senator. Under current law, we have to cost share 50–50 from the Inland Waterways Trust Fund.

Senator ALEXANDER. Well, why can't we change that to 90–10?

Ms. DARCY. That would take an Act of Congress.

Senator ALEXANDER. Well, we're in a position perhaps to do that if you were to recommend it. You think it'd be a good idea?

Ms. DARCY. I think what we'd have to look at is all the competing priorities on the system before we made any recommendation.

Senator ALEXANDER. Well, do you think it's a good idea for one big project to soak up virtually all of the money available for the Inland Waterways Trust Fund dams and locks?

Ms. DARCY. Well, unfortunately, given the constraints of the incoming revenue from the tax, that's all that we can afford at this time. The priorities have been discussed with the industry.

Unfortunately, it is a very expensive project.

CHICKAMAUGA LOCK

Senator ALEXANDER. Has this huge increase, 50-percent increase, just this year in the cost of this lock, changed the projected timeline to restart construction on Chickamauga Lock?

Ms. DARCY. I don't believe so, but in general I——

Senator ALEXANDER. That would be encouraging news.

General TEMPLE. Do you mean whether it has changed the timeline for construction on Chickamauga Lock?

Senator ALEXANDER. To restart construction, right. Is the fact that they're going to spend an extra $1 billion on Olmsted, has that affected the timeline for restarting construction on Chickamauga Lock?

General TEMPLE. It will affect it in 2013, Sir, based on current projections of revenue and priorities.

Senator ALEXANDER. General, have you made projections about how much longer the current Chickamauga Lock can be operated and maintained?

General TEMPLE. Our asset management database system is going to be used to perform that analysis. We know that we can sustain operations on the Lock at least through 2013.

How much longer we'll be able to do it given its current condition, which you're very aware of——

Senator ALEXANDER. You mean it might be closed after 2013?

General TEMPLE. There is that possibility, Sir, depending upon——

Senator ALEXANDER. You might close the Chickamauga Lock after 2013?

General TEMPLE. There is that possibility, Sir, depending on the status of the Lock itself and its integrity.

Senator ALEXANDER. Well, that is dramatic news for the people of the Southeastern United States which I've not heard before.

What would it take to keep it open?

General TEMPLE. Sir, if we were able to continue to apply O&M dollars to keep it going because of the expensive concrete situation that I know you're familiar with there, we would be able to sustain it for some time longer.

Senator ALEXANDER. But you've recommended reduced funding for aggressive maintenance on the Chickamauga Lock?

General TEMPLE. That is correct, Sir, because of competing priorities and funds available, we had to make some difficult——

Senator ALEXANDER. So you're going to spend, you're going to increase by 50 percent the cost of this one project, Olmsted Lock, by $1 billion and run the risk that after 2013, which is only a year plus a few months away, that the Chickamauga Lock might be closed which would cost thousands of jobs in the Tennessee-Georgia area, put 150,000 heavy trucks on I–75 and threaten the operations

at the Tennessee Valley Authority, the Oak Ridge Laboratory, and many industries in the area.

General TEMPLE. Sir, that is the recommendation based on working with all of the stakeholders to determine the relative needs throughout the entire system.

Senator ALEXANDER. Thank you, Madam Chairman.

Ms. DARCY. Senator, could I just add something? The 2013 budget includes Operation and Maintenance dollars for the Chickamauga Lock. We just haven't added the enhanced maintenance.

So the maintenance that we have ongoing, hopefully, will continue to keep it operable. We just haven't included funding for the enhanced maintenance. We will continue to monitor the effects of that.

Senator ALEXANDER. Well, I would hope so. Even the possibility that it might close at the end of 2013 is a startling development to me if that's what you're saying. Is that what you're saying?

Ms. DARCY. We don't anticipate it closing, but it's a possibility. Right now, we are providing funding for ongoing maintenance, just not for the enhanced maintenance.

Senator ALEXANDER. Thank you, Madam Chairman.

Senator FEINSTEIN. Thank you very much, Senator Alexander.

Senator Collins.

Senator COLLINS. Thank you, Madam Chairman.

VERNAL POOL REGULATIONS

Secretary Darcy, the Corps has permitting responsibilities under section 404 of the Clean Water Act for development activities that may occur in wetlands.

And several of my constituents, including municipal officials, hospital on the coast that had a project underway, have raised concerns about the application of regulations in the New England district, particularly, as they differ dramatically from what is required under State law and maintenance, known for very strong environmental laws.

And they seem to be far more demanding than those supplied by the Corps in other parts of the country. For instance, for significant vernal pools, the State of Maine regulates a 200-foot terrestrial buffer area that includes the vernal pool.

The Corps published rule requires a 500-foot radial circumference. But more recently, guidance has been issued, not through the formal rulemaking process, but just guidance, that increases the radial distance to 750 feet for any vernal pool that may be perceived as having critical habitat.

Now, just so I want to understand the difference, if you apply a 700-foot buffer to property, it results in a regulatory footprint of more than 40 acres for just a 50-foot diameter vernal pool.

So going from 500 feet to 750 feet has enormous consequences and has brought to a halt several important development projects that municipalities have been pushing in Maine.

I'm interested in first getting a better understanding of how your New England district determined to increase the regulated area to a 750-foot radius without going through the normal Administrative Procedure Act (APA) procedure and instead did it through informal guidance.

Ms. DARCY. I can't answer that because I don't know, but I will commit to you that I will ask the New England district as soon as this hearing is over, and I will find out why.

Senator COLLINS. Let me ask you a second question. In the New England district, it also appears that the Corps has abandoned the nationwide permit program and has begun to defer to the commenting agencies on protection of vernal pool habitat even in the less significant, and frankly, ubiquitous forested wetlands that are present throughout my State of Maine.

Now, by contrast, again, the State distinguishes between significant vernal pools as well as natural and manmade vernal pools in its regulation. But the Corps does not make that distinction, and instead is regulating every vernal pool in the same way.

And in my State there are literally thousands of vernal pools and forested wetlands that are different from other States and the application of this regulation in Maine has the potential to affect literally tens of thousands of acres of land. And that's why we're getting this slew of complaints.

Now, by contrast, in the South Atlantic district, these nationwide permits are still available for projects with multiple acres, and in some cases, projects are allowed without permits.

And, again, I'm trying to understand why is there such a great difference in the way the New England district regulates wetlands versus the South Atlantic district?

Ms. DARCY. I'm going to say that it's probably because of the different topography and geography that we're dealing with, but I am not sure that is a good enough answer. I think I owe you a better answer than that as to why the New England district is considering these differently from other districts, considering the nationwide application of permits.

Senator COLLINS. Well, I would ask that you respond to those questions in writing, and my time has expired. I have a couple more that I will submit for the record on this issue as well.

I know it's a very technical issue, but what I'm hearing from everyone from officials in Brewer, Maine to a manufacturer in Auburn, to a hospital in Rockport, Maine, there's something going on.

And, as I said, Maine has strict environmental laws. We prize our environment. But the implications of this new approach by the New England district is bringing to a halt a lot of very important economic development projects.

I do want to thank the President for including $13 million in the budget request for the dredging of the Portland Harbor. That is a very important project to economic development in my State.

And I am still concerned about those smaller ports and will be proposing a question for the record. Thank you.

Senator FEINSTEIN. Thank you, very much.

Senator Lautenberg, I usually do early bird, and you've got a bird earlier than——

Senator LAUTENBERG. I consider Senator Graham a friend, and I wouldn't want to deprive him of the opportunity to proceed, if necessary.

Senator GRAHAM. I will certainly defer, if you need to go Senator Lautenberg.

Senator LAUTENBERG. All right. Now, it's my hand. Thank you very much. Thank you, members of the Corps for the wonderful work you do and for the dependence that we've built over a long period of time for you to fix things sometimes where nature's gone wrong, or where man's gone wrong.

PASSAIC RIVER BASIN

But we need your work to continue and we need it to be appropriately budgeted. Last year, President Obama toured the Passaic River Basin in New Jersey following Hurricane Irene.

And the budget includes $1 million for a study to find a long-term solution to chronic flooding in this area. However, I'm told it will take at least 3 years for construction to begin on a solution.

Now, how can the Corps, General, expedite this project to ensure that families in the Basin have flood protection as soon as possible?

General TEMPLE. Well, thank you, Sir. We are re-looking our whole planning program in order to address this issue of timeliness, and this includes not only changing the process in order to get after timeliness, but also we are using six pilot projects to look at how we can compress studies in a way to provide these studies more quickly.

We're taking a look at the entire inventory of all of our feasibility studies to determine how best to apply our limited capabilities against the highest priority studies, and we're improving our training and certification of all of our planners.

That said, we're striving towards a goal of a three-by-three-by-three strategy which involves a $3 million effort at less than 3 years in order to provide these types of services, Sir.

So, we're working to compress the schedule, and we'll certainly do that in this case.

ONGOING FLOOD CONTROL STUDIES

Senator LAUTENBERG. Ms. Darcy, the budget requests funding for six new Army Corps studies is included. However, the budget doesn't include funding for several critical ongoing New Jersey studies including the Rahway River Basin, the South River Raritan River Basin, the Stone Brook Mill Stone River.

Now, why does the budget request funding for these new projects while leaving out these three ongoing, flood control programs; do you know?

Ms. DARCY. Well, Senator, we did provide some money in the work plan for these three studies. However, in evaluating the ongoing studies for funding in 2013, these did not compete as effectively as some other studies.

Senator LAUTENBERG. Well, we'd like to make sure that we get these things in order because we know one thing, the three projects that I talk about are critical to the safety and wellbeing of people in those areas.

NEW YORK-NEW JERSEY HARBOR DEEPENING

I'm pleased that the budget includes, Secretary Darcy, $68 million to complete the deepening of the New York-New Jersey Har-

bor, a critical economic engine that supports more than 230,000 regional jobs.

Now, following completion of the construction phase, what are the Corps plans to maintain the Harbor so that large cargo ships have easy and sustained access to the port and that we don't lose these ships to other places?

Ms. DARCY. Once the deepening is completed, we will continue to operate and maintain that harbor through the Harbor Maintenance Trust Fund, and it will compete within that trust fund for available dollars.

Senator LAUTENBERG. The Corps is filled with experienced professionals that do great work. However, the most frequent complaint that I hear from local communities about the Corps is that it takes too long. I think, generally, you made reference to that in your comments.

Is the Corps considering ways to decrease the time to build projects? Perhaps, General, that question should go to you?

General TEMPLE. Thank you, Sir.

When I spoke earlier about the transformation of planning, that's a subset of Civil Works transformation, which includes four key elements.

First, planning, which I described a little earlier. Also, a focus on performance based budgeting processes which are reflected, for instance, in the 2013 budget.

Performing a complete inventory of our assets and performing better asset management across those facilities that we're responsible for.

And last, but not least, we are looking at how we deliver these through changes in methods of delivery that allow us to leverage the expertise across each district, across each region, and indeed, across the entire enterprise, to ensure that we deliver our products and services in a more timely fashion.

Senator LAUTENBERG. Now, we appreciate the fact that there's almost always an overload in the Corps because there are more projects than there are hands or dollars. But we encourage you to keep up your good work.

Thank you very much.

General TEMPLE. Thank you, Sir.

Senator FEINSTEIN. Thank you very much, Senator Lautenberg.

Senator Graham.

IMPACT OF PANAMA CANAL EXPANSION ON UNITED STATES SHIPPING PORTS

Senator GRAHAM. Thank you, Madam Chairman.

I want to recognize the Executive order issued by President Obama. It says, "Improving Performance of Federal Permitting and Review of Infrastructure Projects" dated March 22.

I am very impressed by this document. It really does through the Executive branch lay out a way to speed up these projects and to come up with a better vision about how to execute and maintain major infrastructure projects.

The one thing I would suggest is to look at putting port people on the steering committee, the people that are on the front lines.

But I just wanted to recognize the Administration's efforts in that regard.

Now, you also report, Secretary Darcy, in June?

Ms. DARCY. Yes, Sir.

Senator GRAHAM. And as you can tell from a California perspective, the current system's not exactly where you would like it to be.

And from Senator Lautenberg's question, you have a harbor that's been studied, designed, constructed, and he's worried about maintenance of large ships. Now, I'm worried about the Chickamauga Lock. I didn't know about it, but I'm worried about it now. So, good, I am sufficiently worried.

What we're doing, among ourselves up here, is trying to create a vision, in collaboration with the Executive branch, that recognizes things are about to change dramatically.

The ports on the west coast seem to have a real need in terms of interior infrastructure development, and the definition of harbor maintenance doesn't seem to get us to that need.

I would argue that the best way for us to have a vision is to look at these trust funds anew. And try to find ways to get more money in the system, maybe more matching money.

But what we're going to be working on among ourselves is when the Panama Canal expands in 2015, it has a direct impact on the east coast, and will change shipping as we know it, including the interior along the Mississippi River and other places; do you agree with that?

Ms. DARCY. Yes, Sir.

Senator GRAHAM. So what we're looking at doing is seeing how can we reconstruct or redesign these trust funds to get the money in place to build toward a vision?

So rather than worrying about funding up front, we're trying to create a vision, a vision that would allow west coast ports who have a different problem than the east coast to be able to access funds that they're helping generate to make sure that America on the west coast has the best facilities possible in an international competition for export jobs.

And, if we don't get this right soon on the east coast, ports are going to pop up along the Caribbean, Cuba, and other places, and if we don't watch it, this change in shipping is going to be lost to the United States.

Do you agree that's a possibility?

Ms. DARCY. It's a possibility, yes.

Senator GRAHAM. So what we're looking at doing is that some ports need to be deepened along the east coast. Maybe we can look at the Harbor Trust Fund anew and say that, you know, dredging is a new activity allowed in the Harbor Maintenance Fund.

And when it comes to Harbor Maintenance definitions on the west coast, allow money for interior development. Now, the inland piece is going to be affected by what happens on the east coast.

So what I would suggest is that we try to create a vision of what happens to our interior ports, based on Panama Canal expansion, look at what the west coast needs, in terms of their harbors, and take these trust funds and redesign them to meet the reality of the 21st century.

Do you think that's a good project for us to engage in?

Ms. DARCY. I do. I think we need to look at both trust funds as to what needs need to be met that aren't being met by them right now as well as increasing the revenues to them.

Senator GRAHAM. And the trust funds, as I understand it, generate about $1.2 billion a year, right?

Ms. DARCY. The Harbor Maintenance Trust Fund generates about $1.4 to $1.5 billion a year.

Senator GRAHAM. And how much do we spend each year?

Ms. DARCY. The President asked for $848 million this year.

Senator GRAHAM. So I would just suggest that people are paying or investing in these ports through fees that we ought to be using the money to make sure that we meet the President's goals of doubling exports.

Do you agree that one way to double exports in America is to have modern ports and shipping systems?

Ms. DARCY. Yes, and we're trying to reach that goal by keeping what we have in working order.

Senator GRAHAM. Okay. Now, that's just not enough. We need to keep what we have in working order, but we also need to have the best in the world. So that's our goal, right?

Senator FEINSTEIN. Would you yield for just a moment?

Senator GRAHAM. Yes, I will.

Senator FEINSTEIN. I once took a little tour of ports, the Hong Kong port, the Singapore port, other ports. Our ports are so far behind in infrastructure that it's scary.

Senator GRAHAM. It's scary, isn't it.

Senator FEINSTEIN. We are nowhere close to modern.

Senator GRAHAM. And we're going to fix that together, aren't we?

Senator FEINSTEIN. Yes, I hope so. For existing ports as well as potential future port improvements.

Senator GRAHAM. Okay. Yes, Ma'am.

So, my time is up. But here's what I would like in the June Report. I'd like you to detail, as much as you can, the reasonably known consequences of Panama Canal expansion, knowing that you're going to have limited funds no matter what you do, and give us some sense of prioritization.

Look at the idea of changing the Harbor Maintenance Fund and allow dredging to come out of that pot of money. Change the definition of the Harbor Maintenance Fund when it comes to west coast port Interior infrastructure development.

Look at the Interior Trust Fund and see if it can be married up with the Harbor Maintenance Fund to create a vision that goes from the east coast to the interior to the west coast.

And give us some idea of what happens if the Panama Canal expands, and what affect the larger ships will have on the east coast as well as the interior of the country. What kind of ripple effect will it have?

And not just try to maintain what we got, but think outside the box and suggest to us ways to leverage the current system, ask for matching funds that are not asked for today, maybe more money coming from the private sector.

This effort should not be just to maintain what we have, but to get ahead of the world before it's too late. Because if we don't act

in a reasoned, rational way, this shipping that's coming through the Panama Canal is going to be lost.

And if we don't upgrade our west coast ports, we're going to lose jobs at a time we need jobs.

Do you think the June Report could be that expansive and that forward leaning?

Ms. DARCY. The report, the study as you know, is well underway, and I'm not sure that we are looking at the uses of the trust funds in that report.

Senator GRAHAM. Could you do that?

Ms. DARCY. We can try; because the Corps is on track to have it completed by——

Senator GRAHAM. Well, just think big.

Ms. DARCY. Think big.

Senator FEINSTEIN. Thank you very much, Senator.

Senator Landrieu.

Senator LANDRIEU. Thank you, Madam Chair.

And I agree with the Senator that we have to think big, but we're going to need a bigger budget to do that. And there's absolutely no way around it.

This budget that we have in front of us, despite the very good work that this chairman has done, and it is in no a reflection on the work that she has done, or that we've done over the course of the last years, simply does not have enough money to maintain or invest or build the structures that we have to to build an economy that lasts.

And that's just the simple truth. There's no way around it. And until we can figure out a way to put more private and public money on the table, we're not going to get there.

I want to thank the Chairwoman for her extraordinary help with the very limited resources that are in this budget, in the President's request, and reflected in our 302(b) allocation.

To thank her very much for the $1.7 billion that you were able to find and direct, Madam Chair, last year for emergency flooding. It has been a tremendous help to not just Louisiana and to our communities that were flooded, but all throughout the Mississippi River, and I understand, the Missouri River as well, and around the country.

So thank you very, very much for being supportive. I want to thank the Corps, even with this limited and wholly insufficient budget, that you were able to start two new projects in the country. And one of them is a project that we should have started 30 years ago. But at least it's getting started now.

LOUISIANA COASTAL AREA PROJECTS

And that is the Louisiana coastal area projects. There were only two new starts. The sad story is that if we had started this project, and this isn't only the Corps' fault, there's enough blame to go around.

We could have saved the size of the State of Rhode Island, which we have already lost, and we're not sure even with this new project, and the billions of dollars that we're finding through a variety of sources, to put towards saving Louisiana's coast, which is America's wetlands.

We're not sure how much of that marsh we can ever recover. But we think we can stop the degradation. We think we can build safe communities for the millions of people that live near this shore, from Texas, Louisiana, Mississippi, and Alabama, that simply cannot be moved north.

So we thank you for recognizing the significant importance of that. But I do want to talk about these trust funds because that is the first step. And Senator Levin has been particularly vocal on this, and I want to do a shout out for him.

Because he's worked extremely hard. And I was wondering why, and then I looked at the map of all of the ports, and saw the cluster of ports in Michigan. And it dawned on me that that is one reason.

But he's right. We have a cluster of ports in the southern part of the country, on America's energy coast. And the fact that we have not been allocating, Madam Chair, all of the money to these trust funds that the private sector is paying into them, I think this should be the major issue for our subcommittee.

I mean the highway committees have done a pretty good job of building support to capture the gasoline dollars for surface transportation. We need to be very aggressive in gathering the maritime dollars that are being paid for our ports and for our dredging.

I understand from looking at this issue that is a huge issue now for us in Louisiana. And I want to ask you if this is true? That of all of the waterways that taxpayers have put in money to build, that the average width and depth is only one-third, we're only maintaining about one-third of that capacity; is that correct?

Or, do you think it's more close to one-half?

Ms. DARCY. I would like to say it's more, closer to one-half, but I think it's probably somewhere in between.

Senator LANDRIEU. So, Madam Chair, just think about this big picture for a minute. Of all the waterways in the country that bring in resources from the South, the East, and the West, our channels, this budget, is barely maintaining one-third of their capacity, either at width or depth.

What that means is our economy is weaker every day that a ship has to be light-loaded or stand offshore because the channel isn't deep enough to come in. Senator, whether this is natural gas coming in or going out, or whether this is fabrication materials coming in and out. They're standing offshore because the channels are not wide enough or deep enough.

This is really a shame. And people focus on infrastructure, thinking about roads and bridges and mass transit. I'm going to be on a tear this year to focus on our water transport because it's crucial.

MODIFIED CHARLESTON METHOD FOR MITIGATION

And, finally, I know my time is out, I want to follow up on one other point. And this is of great concern to Louisiana. Our division down in Louisiana, the New Orleans Division of the Corps, has recently adopted what they call the Modified Charleston Method for Mitigation.

Until I can get a better explanation, I'm going to try to insert money in this bill to prevent that from going in place until I can

understand how the cost is going to affect our efforts to save our coast.

Because just what Susan Collins—Senator Collins was speaking about the complaints in Maine, Madam Chairman, if we don't really understand this mitigation, sort of one for one, like if you take an acre of wetlands, you have to replace it, I'm all for that.

I mean I don't think we can have a net loss of wetlands. But the Corps is now going to a method that's costing a three-to-one. So, instead of a levee, let's say that I have to build a lot of that you have to help pay for, this is why it's important to you, and to me, instead of it costing $100, that same foot of levee is going to cost $400.

It's going to bankrupt us. We have a problem as it is under the one-for-one. If we go to a three-to-one method, the projects are going to become that much more expensive. So I know that there's an environmental reason for this, and I want to be sensitive to it.

But we also have to be sensitive to the taxpayers that are picking up this tab, and be very clear before we implement this what the economic impacts are going to be.

So would you make just a brief 30 seconds, and then I'll thank the Chair for allowing me to go a little over, on the increased cost for flood control if we use that Charleston method?

Ms. DARCY. Thank you, Senator Landrieu.

What's being referred to as the Modified Charleston Method is a different way of evaluating permit applications. As you say, there's an increase in the acreage that would be used for the mitigation on flood control and other projects.

That method is just starting to be used in some of our districts, and what I think I need to do is take a look at what the impact is on all of our districts. Because not all districts are using it.

One of the reasons for using it was to have some consistency throughout a State. And I think consistency is something that we need to have, but your concern about the cost impacts is one that I think we need to look at before we move forward.

Senator LANDRIEU. So before we expand that, I would really recommend that we get an analysis of the economic impact for California, for Louisiana, for, you know, South Carolina, North Carolina, so at least we know what we're laying on people

Because the final question, Madam Chair, we have an obligation to put up some money, but remember, the local governments have to put up some funding too. And this is substantially increasing their costs.

And I'm getting nothing but complaint after complaint from our levee boards. My parish officials said, Senator, this will absolutely bankrupt us, and that's the last thing we need to do.

Senator FEINSTEIN. You have done yeoman's service to your State.

Senator LANDRIEU. Thank you.

Senator FEINSTEIN. I don't know of anyone that's worked harder than anybody for their State than you have.

Here's the problem. You know, we're the chorus talking to each other. The fact of the matter is that the Corps' budget is down 5.4 percent. The Bureau's budget is down 1.3 percent.

Here's the overall issue in the energy and water portfolio, the security part of it, which is tens of billions of dollars, has projects that start out costing $600 million end up costing $6 billion. That's an actual case.

It all has to do with the nuclear security and the warheads of this Nation. They are absorbing a bigger and bigger part. And you can't change that. It's a mandatory spending item.

Who suffers? The Corps, the Bureau. They are pushed and compressed. Somehow people have to wake up to this, and talk to the Administration to help us because it simply isn't the right thing.

At home, our infrastructure is poorer and poorer and poorer. Our ports are outdated. Our levees need fixing. The storms are bigger. The hurricanes are stronger. The tornadoes are much more volatile.

Senator LANDRIEU. Yes.

Senator FEINSTEIN. The damage is much, much greater. There is no ability to respond to it proportionately. That's just a fact.

Senator LANDRIEU. Yes.

Senator FEINSTEIN. That's why I love both these budgets because I said earlier, it's where the pedal hits the metal. It's really where we live. It's what we see.

If 20 percent of Sacramento gets flooded, and I know that's going to happen, and the Corps confirms it to me, and the levee collapses, all I can say is it would have been an earmark. I would put it in, but I can't put it in.

Senator LANDRIEU. Yes.

Senator FEINSTEIN. So the bottom line is, I have to fish around for a way to go around that. It's wrong. It's just plain wrong. I've been here for 20 years. I've never seen anything like it. I mean, why be on the Appropriations Committee if you can't do anything to be of help.

Senator LANDRIEU. Right.

Senator FEINSTEIN. So I am overwhelmed with frustration. I asked the staff to give me a paper of the eight big nuclear projects and whether they're on budget and whether the costs have been borne out. Nothing done in the last 10 years there.

Have the costs that it was initially scheduled to be, been accurate? So we're going to study root causes for this because I think Senator Alexander agrees, and you see it here now.

I am really concerned about Sacramento. The major is concerned about Sacramento. The House delegation is concerned. In the old days, I'd just put an earmark in. I can't do that.

Senator LANDRIEU. Well, Madam Chair, I'm with you 1,000 percent. I serve on the Appropriations Committee, obviously, I'm on the subcommittee, but I can honestly say, of all the committees I serve on, there is no budget that is in more crisis than this one.

We have strains on all the other budgets. They're strained. This is one wholly insufficient. And the reason I know I can say that is because if I asked you, Ms. Darcy, what your backlog is today, there are two new starts in the country that you have in your budget.

They're probably 50 that are worthy to be started, and one of them might be your project, but they don't have the money to do

it. So I'm happy to be one of the two. But the sad story is there should be 50 new starts.

And, if I asked you what your backlog is, isn't it about $60 billion?

Ms. DARCY. Yes, it is.

Senator LANDRIEU. And so, how much money do you have this year if you could apply it to the backlog to get these projects? You have about $2 to $3 billion, right, in construction money, of the $60 billion?

Ms. DARCY. Yes. It's $1.5 billion.

Senator LANDRIEU. You see what I'm saying about this budget being in crisis? I don't think the defense budget is that far backlogged. I don't think the health budget is that far backlogged. It's strained.

This budget is wholly insufficient, and it's not your fault, Madam Chair. It's our fault as the general Appropriations Committee, and we have to say to the President, and to our leadership, we cannot take it, the country cannot.

And I'll just say this one more thing, if there was ever an example of what's going to happen, when the levees broke in New Orleans, in 52 places, and the cost has exceeded to fix it $140 billion, is there any other case study that needs to be presented to thinking people that we cannot survive on this budget?

That's the budget that produced the 52 breaks. Lord help us if something happens to Sacramento. You will feel waves across the whole country because of the products that come out of that.

So I just have to say I'll do what you want, Madam Chair, but we have to do something extraordinary this year for this budget.

Senator FEINSTEIN. I think we have to find a way, and right now, I'll tell you, I don't know what that is. If anyone has a suggestion, I'm open to it.

I think maybe we send a shock wave, and we just don't fund some of these other things.

Senator ALEXANDER. Well, Madam Chair. I think there's a way to deal with this. I think Senator Graham, you, and others have come up with a pretty good idea.

We need to ask the Administration, starting with the thinking that's already done, to think with us, and provide a vision, an idea, for what we need to do about locks and dams and what we need to do about harbors.

And then—and not think about the money, think about the vision. And then after we have the plan or the vision, then we'll see how much it costs, and then we'll see how we pay for it.

Senator LANDRIEU. Could you put the gulf coast in that vision?

Senator ALEXANDER. Don't you have locks and dams and harbors, yes. Of course, I mean, for the whole country, for the whole country.

And part of our problem is we're all tied up in the rules that we have around here which we can change. But if we start out just arguing about the rules that we have, that create the absurdity of having a fund with a lot of money in it that we can't spend, even though we have a lot of needs, and the other fund doesn't have any money in it.

Even though we should be able to construct a way to do that, we just need to start with a vision, then with how to fund it, then how much it costs, and then with how to fund it. And I think we can do that in fairly short order, and I'd like to be a part of it.

PROJECT PRIORITIZATION

Senator FEINSTEIN. Well, for example, the Natomas Project isn't authorized. Why isn't it authorized?

Are you planning to send your number one priority projects for a bill to get them authorized? Or have you been kiboshed?

Ms. DARCY. As the Chiefs Reports are approved by the Chief of Engineers and cleared by the Administration, they are sent to the Congress. We have sent, since 2007, 14 Chiefs reports, and we probably have about another 12 to 13 that might possibly be completed this year. All of them would need to come to the Congress for an authorization.

Senator FEINSTEIN. So summarize that. What does that mean to you?

Ms. DARCY. What it means is that by the end of this calendar year, we will probably have more than 20 Chiefs reports that will need to be authorized by the Congress. They range from harbor deepening projects to aquatic ecosystem restoration projects to flood control projects around the country.

Senator FEINSTEIN. Priority one? The highest priority?

Ms. DARCY. Of those projects?

Senator FEINSTEIN. Yes.

Ms. DARCY. I don't know that I could put one above the other.

Senator FEINSTEIN. Well, let me ask you, is there any way for the Administration to propose, award a bill, for the highest priority projects in the country based on protection of life and property?

Ms. DARCY. That's a possibility. Any Water Resources Development Act (WRDA) proposal that would be developed would include other kinds of policy changes that we are looking at within the Administration.

Within the President's budget, he talked about the White House Task Force on Navigation. In your conversations here today you discussed the need for revamping both the trust funds, that's something that I think this Task Force is going to have to tackle.

In addition, we're working on a capitalization modernization program within the Administration, looking at ways on how we can recapitalize this aging infrastructure. We've all heard today we don't have enough money to do that, so we need to look at different ways.

Senator FEINSTEIN. Stop, stop. I don't mean to be rude, but here's the problem. The Administration has all of the clout. Therefore, it has the responsibility.

Let me tell you a little story. When I was mayor, I used to have these Monday morning department head meetings. The Director of Public Works waited until after one of these meetings, and he said to me, "Madam Mayor, I've got some news for you. I think if there were an earthquake, the rim around Candlestick Park would come down." I said, "Oh, my God, Jeff. I don't have money." I said, "How much would it be?" He came back and said that to retrofit just the rim at $6 million.

Then I thought, well, Candlestick is used so infrequently, you know, what is the real liability here? Then I thought, I now know, therefore, I have a responsibility. So we took and took from others. We had $2 million a year for 3 years.

Who would have ever thought the San Francisco Giants would be in the World Series. At 5 o'clock on a weeknight in Candlestick Park when the big earthquake struck, and the rim held. And the estimate was you had a 60,000 seat stadium, 20 to 30,000 people would have been impacted.

As it is, one of the floors of the Bay Bridge fell down. So, you know, there's a responsibility. I think on a Federal level, we take this stuff too much for granted. I now know what will happen in Sacramento. You know. You have an obligation because this is administration.

Anything we do is an earmark. Anything you do is not, and it gets done. So, I heard you on the public record say that you agree that 20 percent of the City of Sacramento would be flooded if that levee collapses.

What are you going to do about it? You have a responsibility. I have a responsibility. The White House has a responsibility. So, you know, I think up there, there is this perception that, well, it's a low priority, you know, the W61 warhead is more important, et cetera.

Well, not if you get flooded. And, you know, the chances of it getting flooded are much greater than ever having to use the W61 warhead. So, we need to see some passion from the Administration to help because that's where it's at right now.

Ms. DARCY. Yes, Ma'am.

Senator FEINSTEIN. We could put earmarks in the bill and a rule of order would lie against the bill, and I don't know whether we could get the votes or not to overcome it.

But these are not private companies that somebody's doing an earmark for. These are major projects that protect the people and the property of the people. And I think that's really important, and it's the quality of life, and it's the ability to run an economy.

So, Senator Landrieu is absolutely right. But right now, it's got to come from the Administration, and I've got to ask you all to be forceful and fight the fight, and we'll back you up.

I'm going to write a letter to the President, and ask you all to sign it, and ask him to adjust his budget. Then, he can do it, and then it's not an earmark.

It will be for the most serious projects that involve the safety of the people of this country. So, the projects for what hurricanes are doing, and what tornadoes are doing and the destruction that's caused. Those related to the climate getting warmer.

In California, I've tracked the last 5 years of the water levels, and they're definitely changing from the historic average, and the snow pack is getting less and less. So it's just frustrating, to see the Corps and the Bureau take these cuts, and to see another part of our budget which is mandatory with billions of dollars of cost overruns.

It's very frustrating.

General TEMPLE. Madam Chairman.

Senator FEINSTEIN. Yes, General, back us up.

General TEMPLE. Do you mind if I take us back to Chick Lock for just a minute?

Senator FEINSTEIN. Of course.

General TEMPLE. I did say earlier that there was a possibility that the Lock could close after 2013, but based on the monitoring that we've done, and assuming that we have normal operating and maintenance dollars to maintain the Lock, we don't anticipate that it would close within about the next 5 years.

It could, but we don't anticipate that it will. I just wanted to make sure it was clear.

Senator FEINSTEIN. Thank you. I know Senator Alexander is pleased.

General TEMPLE. Thank you. Thank you, Sir.

Senator FEINSTEIN. We have been joined by Senator Harkin. Senator, we're delighted to have you.

Senator HARKIN. Thank you very much.

Senator FEINSTEIN. You'd like to ask some questions?

Senator HARKIN. Madam Chair, thank you very much. I appreciate your indulgence, thank you very much. We all have other committees and many things that we're working on, so I appreciate this opportunity.

And thank you for your wonderful leadership on these issues. I appreciate it very much.

Senator FEINSTEIN. Thank you.

FEASIBILITY STUDIES

Senator HARKIN. I just had a couple of questions I wanted to go over with General Temple and the Secretary.

But, first, General Temple, I want to go over these feasibility studies and flexibility on feasibility studies. Well, I've been briefed and am supportive of your three-three-three concept to reduce the maximum level of cost and time taken to complete feasibility studies as outlined in your February 8 memorandum.

I think this is an important advance. But I also think it's important for the Corps to move forward with specific guidance beyond just the question of scoping, regarding things like the use of older data, simplifying requirements, and providing for accelerated review in order to maximize the ability of your districts to reach the goal of keeping these feasibility studies to 3 years and costing under $3 million.

So it's the issue of providing guidance. My question is, what actions will the Corps be taking to provide additional guidance to the districts regarding these issues? What degree can there be simplification, and the waving of certain current requirements that are now the law?

And what would be the timing of providing more detailed guidance to the districts on this issue? If you need me to elaborate, I will, elaborate anymore on that. Okay.

General TEMPLE. No, that's fine, Sir. Thank you.

Because what you're talking about is planning transformation within the Corps. And as you may know, we have six pilot projects that are ongoing, in addition to the guidance that we've already put out.

We will use information that we collect from those pilot projects to adjust the guidance, to address many of the issues that you have just described. The planning transformation is a work in progress, and as we continue to learn, we will continue to adjust it to achieve the three-by-three-by-three goal that you mentioned earlier, Sir.

Senator HARKIN. Okay, General, let me pursue this just a little bit further. So you got the six pilot projects. You're using the data from that to inform you on the guidance principles that you will put out.

Is there any way you can give me some kind of a timeframe on this at all? Some of these people are looking for detailed guidance on what they need to do, and so they're waiting on that kind of guidance.

General TEMPLE. We will address guidance pertaining to planning as we look at each feasibility study in addition to input that we get from the pilot studies.

So it is a continuous process, Sir. I mean, I can't give you a time because we are working on this all the time, but we'll continue to make progress on it as we move forward together, Sir.

Senator HARKIN. Well, I hope at least I detect some sense of urgency on your part.

General TEMPLE. Yes, Sir, absolutely.

Senator HARKIN. Thank you. That's very important.

DES MOINES RIVER

I'm also concerned about projects, and I think you'll pick up on this, where a local government is paying and conducting a feasibility study, but again, working to meet these requirements of what they call a "work-in-kind credit." I'm specifically talking about Des Moines, Iowa.

I'm facing a very difficult problem with the Corps, the Corps having made a determination of higher flows on the Des Moines River, which is probably true, which calls into question the current flood control system meeting these Federal Emergency Management Agency (FEMA) requirements for a 100-year event.

The city is moving as fast as possible to take corrective action. What specific actions are best though, however, does require considerable analysis. I think we all should be doing whatever we can to allow the process to move forward as quickly as possible to provide appropriate flood protection and to avoid significant economic problems if large areas of Des Moines are determined to be in a flood zone.

So again, I'm asking that the Corps be, I guess what I'm asking is the Corps be at least as helpful to these local sponsors as if the Corps was doing it themselves.

General TEMPLE. Absolutely, Sir. We're aware of the Des Moines situation. We will support the local efforts in addressing this particular issue. It is very important. Yes, Sir.

OLMSTED LOCK

Senator HARKIN. I appreciate that. Third, I don't know if you covered this before I was here, if you have, did you cover anything about the Olmsted Lock at all on the Ohio? No.

Well, people have suggested that it's logical for the Corps to do an in-depth study of the way Olmsted is being constructed, the amount of money that it's taking, which, of course, is keeping us from moving ahead on our whole plan for the Upper Mississippi Locks.

Others have suggested it might be prudent to hold up additional work on Alton as a thorough study is conducted and move forward on other important navigation projects. I just wonder if you could tell me how you feel about that.

Senator ALEXANDER. Senator Harkin, if I may intercede.

Senator HARKIN. Yeah.

Senator ALEXANDER. We did discuss that a little bit and the Olmsted Lock on the Ohio River is increasing from $2 billion to $3 billion this year, a 50-percent increase, and it's soaking up all the money that could be used for other priority projects.

And my question of Secretary Darcy was, have they considered changing the allocation or recommending a change in the allocation from 50 percent from the appropriations and 50 percent from the trust fund to 90 percent from appropriations and 10 percent from the trust fund, which would free up trust fund money for other priorities.

So thank you for letting me intercede there.

Senator HARKIN. No, I appreciate that. So where are we on this? Because I'm with you on this. I'm shocked at the amount of increase in the cost for that Lock.

General TEMPLE. Yes, Sir. We've asked the division and the district to take a look at multiple methods of delivery with respect to this project to see what we can do to deliver the project in a more speedy fashion at less cost if that's possible.

And we expect that report back a little later this spring, Sir. And at that time we'll be able to make a better assessment of the way forward. Thank you.

MISSOURI RIVER

Senator HARKIN. Okay. Thank you.

One last thing on the Missouri River which General McMahon knows well. I appreciate the work that's being done to restore the levees on the Missouri River, but I want to raise a couple of issues.

We do need to move forward with the master manual for the Missouri River, but again, I want to be on record as saying that it has to be balanced for flood protection but for hydroelectric generation and also for navigation. And these things all have to be put in balance. It can't just be one or the other. These all have to be balanced.

So I guess you are going to have a vulnerability assessment on the Missouri River in May, is that right Jo-Ellen, Secretary Darcy?

Ms. DARCY. I think it is next month that it's due, yes, Sir.

Senator HARKIN. Okay. Good. And the reason I mentioned General McMahon is because there's these levees north of Council Bluffs that I understand they've been included in an examination of those needs, in a vulnerability assessment.

There's a problem with them that they were all private levees. But the impact on public property and public lands from not fixing those lands could be sizeable, and so we'd looked at those in the

past, and as I understand it, they're at least going to be included in the vulnerability assessment.

So I appreciate that very much. Thank you, Secretary Darcy. Thank you very much, Madam Chair.

Senator FEINSTEIN. Thank you very much. I just got a note. If you have the opportunity, you should ask Reclamation a couple of questions.

Ms. CASTLE. We need you to justify our salary for the afternoon.

CENTRAL VALLEY PROJECT

Senator FEINSTEIN. Well, let me do that just with a couple, and I don't mean to exclusively focus on California. But we've got a big water problem coming up, Mike, and in contrast to last year's near-record level precipitation, 2012 looks to be a fairly dry year.

The Central Valley Project allocation certainly reflects that, and the South of Delta agricultural service contractors have 30 percent of their contract. The snow pack is still about 54 percent of normal. So these are really concerning things.

Can you provide us with a status report of actions the Bureau intends to take to increase deliveries beyond the 30-percent allocation?

Mr. CONNOR. Yes, Madam Chair. As a threshold matter, I just wanted to say I appreciate your kind words, but I've got to tell you, it's your leadership on these issues and your understanding that the current water supply situation infrastructure in California is just unsustainable. This is what necessitates us to act.

And your urging that we do things better, that we don't accept the status quo, that we coordinate better, is much appreciated and very necessary, quite frankly.

Senator FEINSTEIN. Thank you.

Mr. CONNOR. You're absolutely right about this year's water condition and I'll get to those actions. I just want to give you a statistic that just kind of blew me away on Monday when I received it.

So last year at this exact time in the 2011 water year, we had combined releases from Shasta, Oroville, the State Water Project, and Folsom of 70,000 cubic feet per second (cfs). This year at this point in time, we're at 6,100 cfs, less than 10 percent of what we were last year. So that gives you the context of the hydrology.

And notwithstanding the fact that overall, there has been some precipitation that has moved into Northern California as of late, it's late in the season. It's certainly not near what it was last year, and it hasn't hit the San Joaquin Drainage Basin, which is at a record low, only comparable, I think, in the worst droughts of the late 1970s quite frankly.

So it is a tough year. On the allocations, we're at 30 percent South of Delta Water Service contractors as you mentioned. Based on some of the hydrology and the actions that we're taking. Hopefully, we will have another allocation announcement in the next 7 to 10 days.

So look for that. I just wanted to put that on your radar screen. Based on specific actions recognized going into this year that we are in an extremely deficit situation, we've already started to take some actions.

And we haven't done it alone. We've done it with our partners in the Central Valley Project. We made what we call "Section 215" Water, this is surplus water, available much earlier than we had and under much different conditions than we had historically.

So I think in January we saw an opportunity to make some of the surplus water available through the pumps in the Central Valley Project and we made available about 70,000 acre-feet early on.

That doesn't show up in the allocation, but at least that's good wet water that our contractors can use in this year. We've got a number of other actions that we're looking at that is reflected in the water plan now that we've put out.

We just put out our Central Valley Project water plan for 2012, and that's a result of the discussions we had back in 2010, where we started identifying these other actions. So certainly shifting this partnership that we have with the Metropolitan Water District and the State Water Project to try and use some of their water from San Luis Reservoir early in the season to shore up our supplies.

And we can pay them back later on. I think that's going to be an action that will yield a significant amount of water this year. We are working with the State of California and looking at the Yuba Accord water as a way to help make some additional water available to both the State Water Project and the Central Valley Project.

Senator FEINSTEIN. What was that?

Mr. CONNOR. Yuba Accord. There was some water made available. I can't remember the year that the Yuba Accord was developed.

Senator FEINSTEIN. That's okay.

Mr. CONNOR. But it does make some water available out of that system for both the State Water Project and now we're looking at a sharing arrangement with them that we will try and make use of.

We are still actively trying to promote the water transfer program. So the first couple I mentioned, the 215 water, Yuba Accord, the source shifting activity, that is stuff that we are trying to bring to the table, those actions, this year, to help shore up water supplies.

Also water transfers. We are looking at trying to facilitate, particularly, East-West transfers in the Central Valley, just because it's going to be tough to get water from North to South this year.

So we will try and shore up and make additional water supplies available through water transfers. Beyond that, there are mid-term type of actions that we're looking at, at some additional infrastructure, interties East to West, that might facilitate additional transfers in the future above and beyond what we've been doing historically.

New conservation programs that we can help fund and support that might allow our contractors in one area of the CVP to make new water supplies available for transfers to those with smaller supplies allocations.

And finally, refuge diversification, which we've talked about since 2010. Even the last couple of years using Recovery Act funds, we were able to drill a significant number of wells that helped to diversify the Refuge Water supplies.

It's not a whole lot, but 10 to 20,000 acre-feet is very helpful in splitting that between the level 4 refuges and diversifying the Refuge supply to make that and allow CVP base supplies to be used for other contractors is something that we're still looking at.

So that's the array of things that we're doing short term and mid-term to try and improve water supplies.

Senator FEINSTEIN. Let me ask you this. In your judgment, what would be the amount of acre-feet that these administrative changes could provide?

Mr. CONNOR. I think looking at this year if you throw in the surplus, the 215 water, we should be in that——

Senator FEINSTEIN. Source shifting with the Metropolitan Water District of Southern California in particular.

Mr. CONNOR. Source Shifting, I think would add, we're looking at, if we can pull this agreement together, something in the neighborhood of 50,000 acre-feet. You add that to the 70,000, Yuba Accord is still a little unclear.

But I think we'll be in the 150,000 acre-foot range and depending on transfers that we can additionally facilitate somewhere in the 150 to 200,000 acre-foot range. So that's getting up to—not a lot of that water shows up on the allocations itself, but for context, that is an 8- to 10-percent range of south of Delta Water Service Contracts.

Senator FEINSTEIN. How about at the pumps? Can any changes be made in how the pumps are run, the reverse flow?

Mr. CONNOR. Well, we are operating under the current existing biological opinions right now, notwithstanding the Court orders that have remanded to both Fish and Wildlife Service and National Oceanic and Atmospheric Administration (NOAA) Fisheries to go back and look at some of the reasonable and prudent alternatives.

And because the court did not feel that those were defined or justified enough, we're operating under those Reasonable and Prudent Alternatives (RPAs) right now, and we're under a schedule for coming up with new biological opinion actions in response to court order, probably 2 years on the Fish and Wildlife Service biological opinion and about 4 years on the NOAA Fisheries biological opinion.

Senator FEINSTEIN. What does that translate to?

Mr. CONNOR. Well, that means that until such time as there are new biological opinions in place as a result of the court orders, we're going to keep operating under the existing ones.

Senator FEINSTEIN. Even though they have been found to be wanting.

Mr. CONNOR. Yes. And that's where the Court left it. I should say though that we have improved how we implement our actions under the biological opinions, and we're going to continue to try and do that.

One of the criticisms of the Court was that our triggers for certain actions that restricted pumping were from their view not well-justified.

So we've tried to work with the Fish and Wildlife Service and NOAA Fisheries to get better data collection, do more real-time monitoring. Whether it's turbidity as it relates to smelt or actually tracking the salmon, so that we can be better justified in when we

restrict the pumps and we know it's because there's fish in the immediate area.

That had significant effect in 2011 particularly with the Delta Smelt, the implementation of the Fish and Wildlife Service Pilot program.

Senator FEINSTEIN. Well, that's really what I mean by adaptive management of the pumps.

Mr. CONNOR. Yes.

Senator FEINSTEIN. To really track the movement of fish and get a better sense of the predatory aspects of other fish too.

Mr. CONNOR. Yes. We're doing it better as far as monitoring where the fish are. We still have some ways to go on the predatory aspects and better understanding that aspect of it, quite frankly.

Senator FEINSTEIN. You previously allowed a permit change for the Jones Pumping Plant which allowed for a 500 cfs increase. It helped in 2010. Can you do it again?

Mr. CONNOR. I think in 2010 we were looking at increasing pumping at the Banks plant, the State Water Project plant. And we had some permitting left to do because they have more capacity.

Senator FEINSTEIN. Well, didn't you say the Army Corps had the Banks plant?

Mr. CONNOR. Well, we have to go through an Army Corps of Engineers permitting process to get the additional capacity, the 500 cfs additional capacity late in the season. That's what we were looking at in 2010.

Senator FEINSTEIN. So are you saying that Jones is the same thing as Banks?

Mr. CONNOR. Jones is our pumping plant in the Central Valley Project. Banks is the State Water Project.

Senator FEINSTEIN. Right.

Mr. CONNOR. You know, adjacent pumping plant. And they have more capacity. We don't really have additional capacity at the Jones Pumping Plant.

Senator FEINSTEIN. So, in other words, if you increase Jones Pumping, it comes from Banks, is that right?

Mr. CONNOR. Well, we would look at specifically the idea we talked about in 2010, which was increasing the pumping permitting, the ability to pump more, the permit, at Banks.

So that late in the season, post July, when there are not nearly the restrictions in place on pumping because the fish have moved out of the system, near the pumps, that we could use that opportunity to pump more and get it in the reservoir south of Delta, San Luis Reservoir, south of Delta.

But we do need to go through the Corps of Engineers permitting process. The State has to be lead in that particular effort, and we have to be their partners in that.

Senator FEINSTEIN. Well, as I recall in 2009, we got about 450,000 acre-feet from a number of administrative changes, that you and Interior as well were very cooperative and very helpful with, to get to 45 percent of the allocation south of Delta which is enough to allow farmers to contract, to plant, to harvest, to get a minimal level.

I've been told that they have to have at least 45 percent of their contract. Are you going to be able to get there this year?

Mr. CONNOR. I don't know that we'll be able to get to 45 percent. With the allocation, it's going to very tough. We're going to try and look at the opportunities to move the allocation up.

And then there are, as I mentioned before, those other mechanisms that don't necessarily show up in the allocation, where we can try and make water available. All told, we're certainly striving as a goal to get close to that 45 percent.

Through the allocation and additional water supplies, it's going to be very tough this year.

[The following questions were not asked at the hearing but were submitted to the Departments for response subsequent to the hearing:]

QUESTIONS SUBMITTED TO HON. JO-ELLEN DARCY AND MAJOR GENERAL MERDITH W.B. TEMPLE

QUESTIONS SUBMITTED BY SENATOR DIANNE FEINSTEIN

Question. Why is flood control spending down in your budget for fiscal year 2013 when compared to fiscal year 2012?

Answer. The fiscal year 2012 budget included $1.45 billion for flood risk management compared to $1.41 billion in fiscal year 2013. The fiscal year 2013 budget for flood risk management was developed to advance the highest priority studies and construction projects. Funding levels were based on the execution schedules identified for those studies and projects.

Question. Of the six new study starts that you have proposed, five are for ecosystem restoration. Were there no flood control studies that ranked higher in your selection process?

Answer. The one flood control new start study recommended in fiscal year 2013 is the "Water Resources Priority Study". This study supports the Corps flood risk management business line as a high-priority study that will provide a baseline assessment of the Nation's flood risks at both a regional and national level. The study will also assess existing Federal, State, and local programs and strategies for managing flood risk, which will provide a basis for significant recommendations on ways to better manage flood risks at the national, regional, State, and local levels.

Question. What is your selection process for your proposed new starts?

Answer. New starts are initially prioritized within their assigned business programs. One of the most difficult tasks in preparing a performance-based budget is balancing the most important work, including new starts, across multiple business programs and sub-programs in order to obtain the expected outcomes. New starts are selected when their expected outcomes are likely to be competitive with priorities for other high-performing activities supported in the budget. That prioritization is based upon overall performance guidelines, as follows:

—projects funded to address dam safety assurance, seepage control, and static instability correction problems;
—mitigation, environmental compliance, and treaty requirements or biological opinions;
—projects funded to address a significant risk to human safety;
—projects funded on the basis of their economic or environmental return;
—nonstructural flood damage reduction projects and coastal navigation projects; and
—coastal navigation projects (project phase would support jobs or economic activity).

Question. One of your proposed new starts is a $2.2 billion project. At $150 million a year, which is an optimistic funding level, it would take 15 years to complete. With flat to declining budgets, how will this project get completed in a timely manner?

Answer. The Administration continues efforts to fund more efficiently those projects and studies with the highest return to the Nation in order to bring those project benefits on line sooner. In this constrained fiscal environment, tough decisions will need to be made regarding funding for other remaining ongoing projects and studies that are not expected to provide as high of a return.

Question. You have a new $8 million line item in your request called "Reducing Civil Works Vulnerability" with an estimated $10 million annual continuing cost. What does this new program propose to do and how much is it ultimately going to cost? What benefits will it provide to the Civil Works program?

Answer. The Reducing Civil Works Vulnerability (RCWV) Program will increase the resilience of Corps projects and programs to the effects of the dynamic, often strongly interacting changes in demographics, land use and land cover, social values and social vulnerability, economic conditions, ecosystem habitat suitability, and aging infrastructure that arise independently from climate change and variability. These changing conditions could interact with each other, or with climate change and variability, in ways that increase the vulnerability of Civil Works (CW) projects, programs, missions, and operations. Through RCWV, the Corps will develop comprehensive solutions to reduce vulnerabilities and improve resilience of U.S. Army Corps of Engineers (USACE) missions and operations. This activity will benefit all USACE business lines and requires close coordination with complementary activities, including responses to climate change, flood and coastal storm damage reduction, navigation, ecosystem restoration, hydropower, recreation, emergency management, and water supply.

Question. In your budget request, you generally require a project to have a benefit to cost ratio of 2.5; however, for flood control projects, you have included a number of projects with benefit-to-cost ratios considerably less than 2.5. These are listed with the additional criteria of providing substantial life-saving benefits. What does that phrase mean?

Answer. Providing substantial life-saving benefits is defined by a substantial reduction in risk to human life due to flood inundation. The risk factors that are generally understood to have the most significant, large-scale impacts on potential loss of life from flooding include population at risk, warning time, and inundation depth and are evaluated together to provide a relative assessment of the life-risk associated with each project.

Question. I notice that you have finally increased funding for the Lower Mississippi River from the lower numbers of the last few years to a request of $81.7 million. How much have we spent on the Lower Mississippi to maintain the navigation channel for each of the past 5 years? Do you believe that the request is sufficient? In light of the new policy to not reprogram funds to this project from other projects, what is your plan to ensure navigation is maintained if funding runs short?

Answer. Navigation expenditures for the Mississippi River Baton Rouge to the Gulf project for the past 5 years, including all regular, American Recovery and Reinvestment Act, and Supplemental appropriations are as follows:

—fiscal year 2007: $76,351,238.87;
—fiscal year 2008: $87,787,717.33;
—fiscal year 2009: $114,634,195.08;
—fiscal year 2010: $134,291,130.03; and
—fiscal year 2011: $106,740,907.01.

Approximately $151 million is anticipated to be expended in fiscal year 2012. Funding needs for the project vary considerably from year to year depending on climatic conditions in the Mississippi River basin. The fiscal year 2013 budget amount of $81.67 million for the project is appropriate given the anticipated needs in fiscal year 2013. The Corps monitors the channel conditions on a regular basis and uses that information to schedule dredging activities and maintain navigation.

Question. Your request for the Missouri River Fish and Wildlife Recovery is up significantly this year to $90 million. As you know, many people in that area question the need for this spending in light of the record flooding that occurred along the Missouri River in 2011. They believe that this funding would be better spent on flood control for the basin. How do you answer those critics? If this number were substantially cut, what would be the potential impacts to the operations of the Missouri River?

Answer. The Missouri River Fish and Wildlife Recovery Program (MRRP) was designed to address mitigation requirements (loss of habitat) for the Bank Stabilization and Navigation Project (BSNP) and endangered species requirements of the 2003 amended Biological Opinion (BiOp). The program allows the Corps to continue to operate the Missouri River for all eight congressionally authorized purposes—including flood risk management and navigation—while meeting our environmental requirements of the Endangered Species Act (ESA).

As stated, there is $90 million in the fiscal year 2013 budget for Missouri River Recovery. If that funding were cut or significantly reduced, the Corps would not be in compliance with the ESA and may not be in a position to serve all congressionally authorized purposes on the Missouri River.

The Missouri River Recovery Program is not in competition with funding for repairs to the reservoirs, levees, and other Missouri River infrastructure damaged by last summer's record flows. Based on current estimates to date, the Corps has received all the funds required to return the system to pre-flood conditions in time for the 2012 run-off season.

Question. There are a number of projects in your request that are designated as "high performing projects." Many have benefit-to-cost ratios of 2.0 or less. What is it about these projects that makes them "high performing?" How were they chosen over projects with similar benefit-to-cost ratios?

Answer. High-performing construction projects anticipate high-economic, safety, and environmental benefits to the Nation. Examples of selection criteria include projects that will significantly reduce risk to human safety, or restore a degraded ecosystem structure, function, or process to a more natural condition.

Question. Based on your budget request, do you have concerns about potential failures of any of the Inland Waterway projects in fiscal year 2013? Some of them are in serious condition. Do you see a potential increase in unscheduled lock outages occurring due to this budget request?

Answer. The Army is committed to facilitating commercial navigation by providing safe, reliable, highly cost-effective, and environmentally sustainable waterborne transportation systems. The fiscal year 2013 budget prioritizes funds on those projects that have the highest level of commercial traffic, greatest risk of failure due to component conditions, and the greatest economic consequences of failure. The Corps continues to monitor the risk of component failures that could disrupt or stop traffic. Every effort is made to use the available funding in a way that will reduce the risk of scheduled and unscheduled outages due to mechanical failures on both high and moderate use waterways.

Question. The Corps is the biggest Federal producer of hydropower in the country. What is the condition of these projects?

Answer. The design life of these facilities is usually 35 years. Based on the condition assessment process used by the Corps within the last 3 years, 36 percent of the turbines and 17 percent of the generators are rated either in poor or marginal condition.

The rating scale is as follows:

—*Good (Condition Index 8.0–10.0).*—Expected to continue to provide reliable service for some time in the future. Continue routine maintenance and inspections.

—*Fair (Condition Index 6.0–7.9).*—Expected to provide reliable service in the near future. Continue routine maintenance and inspections.

—*Marginal (Condition Index 3.0–5.9).*—Expected to provide a marginal level of service in the near future. A more detailed investigation is needed to determine potential problems and plan a repair strategy.

—*Poor (Condition Index 0–2.9).*—Immediate intervention is required to determine the problem and plan a repair strategy.

These ratings are indicative of the aging hydropower infrastructure and the decaying nature of this type of equipment over time.

Question. Has there been an increase in unscheduled outages?

Answer. In 1999, the Corps' average unscheduled outage rate was 1.97 percent and has steadily increased to 4.36 percent in 2011, compared to an electrical industry standard of 2 percent.

Question. Is there a plan for reinvestment in these projects to ensure they continue to supply needed electricity?

Answer. The Corps is implementing a Hydropower Modernization Initiative (HMI) to address aging hydropower infrastructure issues for 197 generating units in 54 power plants that are not directly funded by the Department of Energy's Bonneville Power Administration. HMI study results show that an investment of approximately $4 billion over 20 years would improve reliability, restore design level efficiencies and capture improvement and upgrade opportunities where they exist. The fiscal year 2013 budget for hydropower will fund minimum maintenance and does not include funding for major rehabilitation of any hydropower projects. In some areas of the country, the Corps is working with hydropower users on agreements for direct non-Federal financing of major maintenance work.

Question. We provided $1.7 billion in disaster funds to repair damages to Corps projects in December 2011. Was this funding sufficient to repair all of the damages due to natural disasters? If not, did you include funding in your budget request for these repairs? If not, why not? Isn't it important to repair these projects to pre-disaster conditions to ensure they continue to provide the benefits for which they were constructed?

Answer. Fiscal year 2012 supplemental funds focused on repairs resulting from historic flooding in 2011 in the Missouri and Mississippi River Basins that are covered by Presidential disaster declarations, using the following priorities:

—*Class I: Urgent and Compelling (Unsafe)*.—Heavily damaged projects that have breached or failed where there is a probable loss of life.

—*Class II: Urgent (Potentially Unsafe)*.—Damage projects that are likely to fail where there is a probable loss of life and economic damage.

—Classes IIIA and IIIB: High Priority, including:

—*Class IIIB (Conditionally Unsafe)*.—Damaged systems that are likely to fail where there is a potential for economic, environmental, and an indirect potential for loss of life.

—*Class IIIA (High Impact to Navigation)*.—Damaged systems directly impacting high-use navigation.

—*Class IV: Priority (Marginally Safe)*.—All other damaged systems not meeting Class I, II, or III above.

The Corps has made significant progress toward completing priority repairs. The Corps identified 11 Class I (urgent and compelling) projects and expects to complete interim protection for 10 projects by March 31, 2012. Full completion is expected (pre-event conditions restored) by March 31, 2013. There is one Class I project that anticipates completion by March 31, 2014. Similarly, the Corps identified 31 Class II (urgent) projects and expects completion of interim protection for 14 projects by March 31, 2012. Full completion is expected by March 31, 2013. Fourteen Class II repairs are anticipated to be complete by March 31, 2014, and three repairs expect completion after March 31, 2014. The Corps identified 31 Class IIIB (conditionally unsafe) projects and expects completion of interim protection for 19 projects by March 31, 2012. Full completion is expected by March 31, 2013. Twelve Class IIIB repairs are anticipated to complete by March 31, 2014.

A small portion of the costs of damage repairs is not covered by Presidential declarations and, therefore, not eligible for disaster relief funding. Repairs not eligible for disaster relief funding were considered during development of the fiscal year 2012 work plans, and will again be considered during formulation of the fiscal year 2014 budget.

HARBOR MAINTENANCE TRUST FUND

The RAMP Legislation (requires that receipts of the Harbor Maintenance Trust Fund be expended annually)

Question. There seems to be considerable misunderstanding about the workings of the Harbor Maintenance Trust Fund (HMTF). Can one of you simply explain how it is collected and how it ties into the overall Corps budget?

Answer. The Water Resources and Development Act of 1986 authorized the collection of an ad valorem Harbor Maintenance Tax (HMT) on cargo to recover costs associated with operating and maintaining Federal commercial navigation coastal and inland harbors within the United States. Most of the revenue comes from imports, but some comes from coastwise movement of some domestic cargo, and from passengers. Exports and commodities carried on the fuel-taxed inland waterways are exempt from the tax. The HMT is generally collected at the port of entry by Customs and Border Protection, based on the value of the imported commodities. The receipts are deposited in the HMTF by the Treasury Department. Spending from the HMTF is proposed in the President's budget for the Civil Works program and appropriated by the Congress. Appropriated funds are transferred from the HMTF to the Corps expenditure accounts to reimburse the General Fund of the U.S. Treasury for eligible navigation expenditures. In developing an overall budget for the Civil Works program, each project, program, or activity competes for funding on an equal basis.

Question. Are either of you aware of the Realize America's Maritime Promise (RAMP) legislation (S. 412 in the Senate, H.R. 104 in the House)?

Answer. Yes, we are aware of the RAMP legislation in the House and the Harbor Maintenance Act legislation in the Senate. These bills have almost identical language and seek significantly more spending for work that is authorized to be financed from the HMTF.

Question. Can either of you provide us with a short synopsis of the bill?

Answer. The House and Senate bills would direct the Congress to annually appropriate an amount equal to the total anticipated HMT receipts, plus interest, for any fiscal year for the operation and maintenance of the Corps coastal and inland navigation harbors, as well as the U.S. portion of the St. Lawrence Seaway, which is operated by the St. Lawrence Seaway Development Corporation.

Question. I realize this is asking a lot but can either of you give this Committee your opinion on how the Administration might implement this bill if it were enacted

into law? We're not going to hold you to this, but it is important to know what could happen.

Answer. The Army and the Administration have emphasized the need to allocate Civil Works funding based on performance.

Question. Based on what you know of the Administration's budget process, do you believe the Administration would provide the Corps with $700–800 million in additional budget ceiling or would they just rearrange funding within the previously planned Corps budget to meet the requirements of the law?

Answer. Budget decisions are not made in advance. However, proposed increases generally compete for funding on the merits with other potential uses of those funds.

Question. Do you believe additional resources might be worked into the budget to account for the law, or would other missions of the Corps suffer because of the law?

Answer. As stated above, budget decisions are not made in advance.

PROPOSAL TO RETURN HARBOR MAINTENANCE TAXES TO THE STATES WHERE GENERATED

Question. It is my understanding that California Ports provide at least 30 percent of the funding that goes into the HMTF. Can either of you confirm that number for fiscal year 2011?

Answer. An estimated $432 million in HMT was collected on cargo shipped through California ports in fiscal year 2011, which was approximately 29 percent of the $1.469 billion in total HMT tax collected in fiscal year 2011.

Question. If we assume that the Trust Fund generates $1.5 billion annually, then California annually contributes some $450 million to this Trust Fund. How much dredging of eligible harbors and waterways in California were reimbursed by the Trust Fund in fiscal year 2011? In other words, how much of our $450 million is returned to the State? It is my understanding that it is less than 5 percent of the annual revenues. This seems very inequitable.

Answer. The HMT generated $1.469 billion in fiscal year 2011. Approximately $94 million was expended on California navigation projects in fiscal year 2011 and subject to recovery from the HMTF. Most of the revenue comes from imports, but some comes from coastwise movement of some domestic cargo and from passengers. Neither the ports nor the States pay this tax.

Question. Would it be possible for the law to be changed in such a manner that a set percentage of the revenues generated in a given State would be returned to that State?

Answer. The Congress could consider such a change or other changes to the current law.

Question. What would be the impacts of such a change? Do you believe that the Corps would only rearrange port funding, or would this generate additional dredging resources?

Answer. In the absence of a specific proposal, it would be difficult to say what the impacts might be or how it might affect Federal spending.

Question. How can we best increase the amount of funding for the maintenance of our harbors and waterways without having a deleterious impact on other aspects of the Corps' program?

Answer. In the current fiscal environment, the Administration generally has been seeking offsets for any proposed spending increases.

INLAND WATERWAYS TRUST FUND

Question. I note that your budget request anticipates additional funding being available from the Inland Waterways Trust Fund (IWTF) for fiscal year 2013. How do you anticipate that these additional funds will be generated?

Answer. The revenues from the existing diesel fuel tax are expected to increase to approximately $95 million annually. This reflects an estimate of how forecasted changes in the broader economy will affect the amount of receipts collected from this excise tax. The budget also includes an estimate that enactment of the Administration's inland waterways user fee proposal, submitted to the Congress in September 2011, would generate $80 million in receipts in fiscal year 2013. However, the IWTF share of the spending proposed in the fiscal year 2013 budget is financed using the expected revenues from the existing tax, not from the user fee proposal.

Question. How sure are you of these projections?

Answer. The increase in receipts from the existing tax is a projection. It represents a reasonable estimate based on forecasted changes in the broader economy, but it is only an estimate.

Question. If this amount is not generated, what work will you have to curtail?

Answer. That would, in part, depend on how much is collected during the remainder of fiscal year 2012. However, if the amount collected in fiscal year 2013 is significantly below $95 million, the Corps would have to curtail some work. One option would be to spend somewhat less on one of our two largest ongoing inland waterways construction projects, either the Olmsted Locks and Dam project or the Lower Monongahela Locks and Dams 2, 3, and 4 project.

Question. In light of the new cost ceiling that the Administration is proposing for Olmsted Lock and Dam, what is the projection of the share of the Trust Fund that will be utilized over the next 10 years by Olmsted?

Answer. That would largely depend upon progress to enact a long-term mechanism to enhance revenues in the Trust Fund sufficient to meet the cost-sharing authorized in the Water Resources Development Act of 1986.

Question. Several of our other locks and dams are in serious maintenance and rehabilitation needs. Is the funding that will be left after spending the necessary amounts from the IWTF to keep Olmsted on schedule sufficient to ensure that we will not see major failures of this critical infrastructure?

Answer. Lock and dam maintenance is not funded by the IWTF. Major rehabilitation, however, would be in competition for funding with ongoing inland waterways construction projects. The fiscal year 2013 budget prioritizes funds on those projects that have the highest level of commercial traffic, greatest risk of failure due to component conditions, and the greatest economic consequences of failure. The Corps continues to monitor the risk of component failures, that could disrupt or stop traffic. Every effort is made to use the available funding to reduce scheduled and unscheduled outages due to mechanical failures on both high and moderate use waterways.

Question. I don't want to see one of these projects fail and disrupt commodity movements. These projects are getting older every year and if funds are not available from the Trust Fund, they have to come from somewhere. Has the Administration considered an aggressive maintenance schedule to ensure that we do not have a failure?

Answer. The IWTF is used to fund construction activities, rather than operation and maintenance activities. The Administration has provided increased maintenance funding for those projects that provide the greatest economic and safety return.

WORK PLANS

Question. Due to the fact that we had a continuing resolution in fiscal year 2011 and the Committee policy for fiscal years 2012 and 2013 is not to include earmarks in appropriation bills, the Corps has been given extraordinary leeway to expend funds for the prosecution of water resource projects. Unfortunately, the Committee has little say, outside of providing criteria to consider, as to how these work plans are assembled. We are unsure who, within the Administration, has input into their preparation. It is all very mysterious to us. One thing I can assure you based on my review of your work plans is that funding would be applied differently if the Congress were doing the earmarking rather than the Administration.

It appears that since fiscal year 2011, funding in some cases is being applied to bring projects for which the Administration has a policy issue of some type to a logical stopping point. Is that the case?

Answer. All ongoing projects were first evaluated for a minimum level of funding, for example, to complete an increment of useful work or to otherwise meet ongoing requirements. However, all projects competed for such funding, whether or not there was "a policy issue of some type" with the project. After projects were funded on that basis where needed, the Corps work plan for fiscal year 2011 allocated the remaining funding to policy-consistent work.

Question. I want to make sure we understand. All of these are projects that meet the standard definition used for years to determine funding such as technically sound, environmentally sustainable, and economically viable?

Answer. Some unbudgeted projects and even some previously budgeted projects with changed conditions no longer meet those standards.

Question. Are these projects that meet the tests that I just named being considered for funding in subsequent work plans?

Answer. All ongoing projects that could use funding in the applicable fiscal year would be considered for funding, with priorities to be given to work based on performance and on criteria provided in reports accompanying the appropriations.

Question. If not, it would appear that utilizing the work plan funding is a way for the Administration to shut down all projects except those that meet your specialized criteria for budgeting. Is that the case?

Answer. The Administration is committed to maximizing the return on the investment in Civil Works projects. In some cases, it is clear that continued Federal investment in certain studies or projects is not the best use of available funding. Bringing those projects to a logical stopping point allows the Corps to invest its resources to provide a greater overall return to the Nation, while allowing local sponsors to complete the other projects if they choose to do so.

Question. How are local sponsors being impacted by these decisions?

Answer. The Corps works very closely with local sponsors to ensure that they are fully aware of funding decisions and can plan accordingly.

Question. Aren't costs incrementally increased by trying to find these logical stopping points as opposed to continuing construction?

Answer. While funding could be used to advance those projects, providing that funding would divert resources from higher priority work elsewhere. Therefore, for lower priority work, reaching a logical stopping point is sometimes the best use of available funding. Even for those projects that are funded to logical stopping points, the work plans sought to ensure safe site conditions, meet legal requirements, and complete useful increments of work.

Question. Won't this end up costing the national economy more in the long run if you continue to curtail these projects?

Answer. It is possible that some projects would cost more, but the national economy as a whole will benefit if the funding is allocated to higher performing activities. The intent is to optimize the use of the available funding and to efficiently fund those projects that are expected to provide the highest return to the Nation.

CONTRIBUTED FUNDS

Question. In fiscal year 2012, the Congress provided additional authority to the Corps for contributed funds. These are funds that local sponsors gratuitously contribute to the Federal Government with no expectation of repayment, is that correct?

Answer. Yes, this authority authorizes State and political subdivisions thereof to voluntarily contribute funds, with no repayment authorized.

Question. How is this authority being utilized?

Answer. In accordance with the law, the Corps may accept contributed funds for authorized studies and projects for all water resources development project purposes and for all phases of authorized projects. Every request is reviewed to ensure that the acceptance of such funds is legally appropriate, that the accomplishment of such work is advantageous in the public interest, and that the work will not negatively impact other work in the affected Corps district for which funds have been appropriated by the Congress. Prior to acceptance of contributed funds, the Congress first must have appropriated some Federal funds for the study or construction of the project, respectively. Upon receiving a proposal from the non-Federal sponsor to provide contributed funds, the Army provides notification to the House and Senate Appropriations Committees prior to negotiating an agreement for the acceptance of contributed funds.

Question. Concern has been expressed that contributed funds could be undertaken ahead of budgeted work or other work the Corps undertakes. How is this new authority impacting the Corps' workload?

Answer. The Corps is required to evaluate whether the work to be undertaken with contributed funds will impact ongoing work for which the Congress has appropriated funds. The Corps has sufficient expansion capacity to accomplish work funded from both sources. We do not anticipate any negative impacts on the execution of other ongoing work, as demonstrated by the recent experience with American Recovery and Reinvestment Act (ARRA) funding where the Corps executed $4.5 billion of additional work without any negative impacts to ongoing work.

Question. Concern has also been expressed that the Corps would try to take on more architect-engineer type work in-house with contributed funds. Are you continuing to contract out at least the same portions of work that you have in the past as required in congressional direction?

Answer. Yes, the Corps is continuing to contract out at least the same portions of work as in the past, consistent with congressional direction.

Question. Are there any negatives to this contributed funds authority that the Committee should be aware of?

Answer. At this time, we are not aware of any negative outcomes associated with this contributed funds authority. We will continue to monitor the use of this authority.

SECTION 104 CREDITS

Question. As you are aware, the new policy on crediting has been extremely controversial in California and other States. I appreciate how you have worked with us to ensure that the language in section 2003 was interpreted appropriately. I am not completely happy with the guidance that you recently released, but it is much better than the draft guidance. It is my understanding that credit will not be afforded prior to the draft report stage of the project. Is that correct?

Answer. Yes. When a project partnership agreement has not yet been executed, an in-kind memorandum of understanding (MOU) must be executed prior to a non-Federal sponsor initiating construction work in order for such work to be eligible for credit. As provided in the guidance, an in-kind MOU for construction work may not be executed prior to the release of the draft feasibility report for public review.

Question. There could be cases where that may be too restrictive for some flood control agencies that are trying to maximize flood protection for their citizens. In those limited cases, will you consider exceptions to this policy?

Answer. Yes, exceptions to this policy will be considered in those very limited cases where a compelling reason can be demonstrated why the construction work for which credit is sought must be undertaken prior to the release of the draft feasibility report for public review.

Question. If lands are purchased as a part of the credited work, are those lands generally credited against the lands required for the overall project?

Answer. Yes. Section 221 does not alter any responsibility of a non-Federal sponsor to provide or pay for lands, easements, rights-of-way, relocations and disposal areas (LERRDs) for a project, nor does it affect the affording of credit for such LERRDs. Any LERRDs required for a project, including LERRDs associated with work determined to be integral to the project, will continue to be credited as LERRDs toward the non-Federal cost share.

INTERAGENCY PERFORMANCE EVALUATION TASK FORCE

Question. After Hurricane Katrina, the Interagency Performance Evaluation Task Force was charged with looking at the technical issues surrounding the levee failures in New Orleans. Another group was charged with reviewing the policy and decisionmaking process that led to the system that was in place at the time. It is now 6½ years after Katrina yet funding remains in the budget request, at an even higher level than in the past. The justification shows an allocation of about $12 million through fiscal year 2012, but an additional $53 million in funding needed to complete.

What exactly is this funding for?

Answer. The Interagency Performance Evaluation Task Force (IPET) assessment reviewed the technical issues associated with the infrastructure performance during Hurricane Katrina. The Hurricane Protection Decision Chronology (HPDC) reviewed the policy and decisionmaking associated with the New Orleans hurricane protection system over several decades leading up to Katrina. Those two assessments were the drivers for the Chief of Engineers announcement of the "12 Actions for Change" initiative in August 2006. That strategic program was initiated to incorporate the lessons learned from the two post-Katrina assessments into Corps policy, practice, and culture in order to modify the way the Corps plans, designs, constructs, and maintains its infrastructure. The ongoing program continues to be funded under the IPET/HPDC Lessons Learned Implementation remaining item. This is an ongoing program, aimed at continuous learning and application of lessons from Katrina and subsequent experience.

The strategic program continues being executed by four national teams. The four national teams established multiple project delivery teams to execute specific tasks in support of the program. The teams have been working on policy, guidance, methods, tools, technology, and training to expand USACE's use of systems-based approaches, increasing the use of risk management in our business practices and decisionmaking, communicating risk more effectively, and giving greater priority to technical competence and professional accountability. While all actions are interrelated, each of the four teams has a focus area:

Comprehensive Systems Approach.—Emphasizes an integrated, comprehensive and systems based approach incorporating anticipatory management to remain adaptable and sustainable over time. These changes require USACE to use collaborative, adaptive planning and engineering systems throughout the project life cycle to effectively manage its aging infrastructure in an environmentally sustainable manner through explicit risk management. Approximately $3.6 million has been allocated to this team through 2012. The fiscal year 2013 budget includes $3.6 million to continue development of supporting technologies to improve the effectiveness of

post-authorization evaluations and assessments of incremental change over time; address climate change impacts to water resources projects, with particular emphasis on developing the framework for how climate change and sea level change should be considered in making decisions for existing infrastructure investments; and continue to implement the consistent nationwide project datum and associated subsidence standards and certification.

Risk Informed Decisionmaking.—Emphasizes integrated risk management. These changes require USACE to use risk and reliability concepts in planning, design, construction, operations and major maintenance and to improve its review of completed works program by including an assessment component with the goal of ensuring safe, reliable, and resilient infrastructure. Approximately $2.5 million has been allocated to this team through 2012. The fiscal year 2013 budget includes an additional $2 million to further develop supporting methods and technologies to support the transformation of Inspection of Completed Works from project element inspection to a risk-based system assessment; advance the understanding of risk and reliability including establishment of a Risk Gateway containing resources for webinars, training, and the development of a second generation risk model to broaden the techniques used in New Orleans for Corps-wide use.

Risk Communication.—Emphasizes clear and candid communication of risk both internally and externally, supporting risk-informed decisionmaking. These changes require USACE to improve its effectiveness in communicating risk; to coordinate a risk management approach and policy with all agencies and stakeholders; and to specifically establish ways and means to increase public involvement in informed risk decisionmaking. Approximately $1.5 million has been allocated to this team through 2012 focusing most on risk communication skills. The fiscal year 2013 budget includes an additional $300,000 to provide training on public participation skills and methods. A pilot will also be conducted to test those methods in the USACE infrastructure environment.

Professional and Technical Expertise.—Emphasizes professionalism and technical competence. The purpose is to enable development of expert Corps capability to provide safe, reliable, adaptable, sustainable systems. Approximately $1.5 million has been allocated to this team through 2012. The funds have been used to assess competencies, gaps, methods of delivery, and sustainable strategies for maintaining and building core competencies. The fiscal year 2013 budget includes an additional $100,000 to survey technical staff and input technical competencies into Army's Competency Management System, a recently developed tool that will help USACE managers to better integrate competency gaps into the hiring process.

The total cost for the four focus areas, before consideration of post-2011 assessment activities, is $62 million. This figure does not include $9.9 million to update the system assessment to learn from the historic flooding of 2011, and develop ways to apply those lessons, as the scope and cost for the update were only recently developed.

Question. Why aren't the new activities split out as a new start studies? It seems like this Katrina study is just morphing to fit whatever crisis is at-hand.

Answer. The 2011 flooding in the Greater Mississippi Basin was among the largest and most damaging in this century, comparable to the major floods of 1927 and 1993. Due to the historic nature of the flooding, a post-flood assessment of the entire system performance is needed to review the operational decisionmaking process and to identify opportunities for improving future system operation and performance. The assessment is intended to evaluate performance of the overall system and the decision and communication processes and recommend operational changes, both within and outside of existing authorities and policies.

The post-flood assessment and the New Orleans assessment are interdependent in that they employ similar analytic methods, contribute to the same objective (to improve the operations and performance of Civil Works water resources systems), and will be applied jointly to the modification of policy, practice, and culture. Consequently, the post-2011 flood assessment was integrated into the IPET/HPDC Lessons Learned Implementation remaining item.

Question. Do you envision this as a permanent line item in the budget or is there a definitive endpoint to the proposed activities?

Answer. The total cost for the scoped activities described above is $71.9 million, before consideration of future price level adjustments. The activities will compete for available funding until completed.

PERFORMANCE-BASED BUDGET AND DEVELOPMENT OF WORK PLANS

Question. The Administration claims the budget funds the highest performing projects and programs in its water resources missions. It appears to us that the

budget, as proposed, is woefully short of funding those projects that contribute to the national economy and provide benefits and services to the Nation through navigation and flood control. The Congress generally has increased the agency's budget above the Administration's request and expanded the list of projects and types of projects funded. Still, fundamental questions about what the agency does and how it operates are being asked by some observers. The perspectives on how to proceed among Members of Congress, project sponsors, fiscal conservatives, environmental interests, and other stakeholders vary widely.

What performance-based criteria does the Corps use in determining how much funding it proposes for planning and construction projects? Not the individual projects or studies but the overall funding levels for the accounts?

Answer. Performance criteria are not used to set account totals. Rather, the Corps evaluates each planning and construction project based on its individual merits, using the criteria applicable for that type of project, and account totals are established by considering the relative returns of investments among the various accounts, within the totals available for Civil Works.

Question. It seems that the monetary benefits that Corps infrastructure provide to the national economy is not considered when determining funding levels. How do you determine the level of funds within each business line?

Answer. Funding levels within each business line are determined at the project level and considering the relative return of investments within each business line, within the totals available for Civil Works.

WHITE HOUSE NAVIGATION TASK FORCE

Question. We read with interest in the Administration's budget proposal to create a White House navigation task force.

What is the scope and intent of this task force?

Answer. Details of the task force's scope, intent, and composition are being developed. The task force will provide a forum for developing a broad strategy for investments in support of navigation and may also seek to coordinate amongst the many Federal navigation programs. The task force would develop this strategy through a multimodal view of the Nation's investments in navigation, whereas the Corps is focused on the type of infrastructure that the Corps has constructed and maintains.

Question. Who will be included on the task force?

Answer. Details of the task force composition are being developed.

Question. Will the Corps get a seat at the table?

Answer. Details of the task force composition are being developed, but we anticipate that the Corps would be involved.

Question. What about the navigation industry?

Answer. Details of the task force composition are being developed.

WATER RESOURCES MODERNIZATION

Question. The President's fiscal year 2013 budget proposes a new Water Resources Modernization Initiative as the foundation of a comprehensive strategy for investing in the Nation's water infrastructure. We are pleased that the President is committed to investing in a 21st Century Infrastructure for America—including its water infrastructure—as a means to strengthen the Nation's economy, create jobs, and bolster our long-term global competitiveness.

What specific proposals will the Administration include in this new modernization initiative?

Answer. The Administration and the Corps are exploring options for modernizing water resources laws, policies, and practices, including project financing. This effort will be very broad in scope. We want to consider what improvements are possible within existing law and policy, what the limitations of those improvements may be, as well as whether policy revisions or new authorities should be proposed. On the topic of funding, which is a part of this effort, the Administration has already proposed a user fee to help finance inland waterways capital investments. Proposals to change the way that the Nation finances investments in our other program areas may also be considered.

We are open at any time to a discussion with the Congress, our cost-sharing partners, or other stakeholders on your and their suggestions to help us to improve current water resources laws, policies, and practices.

QUESTIONS SUBMITTED BY SENATOR PATTY MURRAY

ARMY CORPS OF ENGINEERS—LEVEE VEGETATION

Question. Assistant Secretary Darcy, as you know from our previous conversations my home State and the entire west coast are very interested in the ongoing process regarding levee vegetation. Let me be clear—we must make sure that our levees are safe. But we also have to balance levee safety with meeting other requirements, such as the Endangered Species Act (ESA) and our Federal tribal treaty responsibilities.

As you know, in the West vegetation on levees has been a critical tool in ensuring that levee sponsors are meeting ESA requirements and tribal treaty obligations. My colleagues from Washington State, and I have been working with you and your staff for several years on the draft Policy Guidance Letter (PGL) that will ultimately completely transform the process by which the Corps issues variances to allow levee vegetation.

As I read the latest draft guidance, published in February, I'm pleased that some of the issue we've brought to your attention have been included. However, I continue to have concerns about how this PGL will actually be implemented on the ground.

In particular, I am concerned about the ambiguity in the PGL regarding the ESA and tribal treaty obligations. I'm pleased to see the Corps acknowledge that these important requirements must be met, but can you please provide clarity on how the Corps will address this in variance applications or System Wide Implementation Framework plans?

Answer. The Corps recognizes that in executing its authorities and responsibilities to promote structurally sound levee systems in furtherance of life safety, the agency must also address environmental and natural resource needs and the rights and interests of tribal nations through compliance with all applicable laws, regulations, and treaties. In instances where multiple interests are involved, the Corps will collaborate with levee sponsors, natural resource agencies, and tribal nations to develop solutions to meet the mandates of all applicable environmental and tribal requirements, while recognizing the paramount importance of protecting human life. The Corps and the levee sponsors will be able to use either the vegetation variance process or a more comprehensive system-wide improvement framework (SWIF) process to develop strategies for addressing the multiple objectives and constraints that may apply to a particular levee system.

The Corps believes that a reasonable approach to addressing these responsibilities and developing sustainable solutions is to review the environmental impacts of the application of levee system standards as they are applied to the site-specific circumstances. With this approach, the Corps recognizes that each levee system is a unique flood-risk reduction system that operates within the broader and equally unique local ecosystem. This approach also recognizes that the analysis of potential environmental impacts is dependent upon future, undetermined actions and decisions of the levee sponsors who operate and maintain the levee systems.

The Corps will work closely with the levee sponsors, appropriate resource agencies and tribal nations, as well as other interested parties, to complete the environmental compliance process. As part of that process, the levee sponsors will be required to:

—provide the background information and documentation necessary to complete environmental requirements; and

—implement any measures that are required as a product of the environmental compliance as a condition of their choosing to participate in the program for rehabilitation assistance under Public Law 84–99.

Environmental compliance on levee systems operated and maintained by the Corps remains the responsibility of the Corps.

Question. The Seattle District in my home State of Washington has been intimately involved in managing vegetation on levees for many years and has an on-the-ground working knowledge of the region. I understand the need for Corps Headquarters to be involved in this process but have concerns about Headquarters employees who have never been on the ground in my State making final decisions on something this important. As you finalize the PGL, what steps will you take to delegate decision authority for the approval of variances and SWIF plans to the District or Division level?

Answer. Both the vegetation variance process and SWIF policies will be reviewed periodically and process improvements will be considered, including future delegation of decision authority, based on demonstration of consistent application of the PGL nationally and lessons learned.

Question. Ms. Darcy, making a change of this magnitude in the process for variance applications is likely to be costly to levee sponsors—particularly in the Washington, where as I mentioned we have had a District-wide variance in place for several years. What financial and technical resources will the Corps provide to levee sponsors who want to stay eligible for the Public Law 84–99 program, but do not have the capacity to develop the technical elements needed to complete a variance application or a SWIF plan?

Answer. The Corps will work closely with levee sponsors to help determine the most viable option to meet Corps policies and standards. Both the vegetation variance process and SWIF policy encourage a collaborative approach. The Corps will assist levee sponsors through these processes by providing technical expertise, levee data (if available), and other applicable subject matter experts. For example, the vegetation variance process encourages involving the Corps vegetation experts as part of the scoping of variance packages, to determine early in the process the required environmental and engineering analysis.

Question. The Corps' own Engineering Research Development Center (ERDC) analysis of levee vegetation produced—at best—mixed results. The ERDC report indicates that, in contrast to the standing Engineer Technical Letter (ETL), vegetation can actually be good for levees in some cases. It is critical that the Corps provide resources for continued scientific investigation into this issue. What are your plans, with ERDC, to implement a prioritized research program to provide a regionally appropriate, technical basis for a vegetation management policy that supports our shared objectives of safe levees, riparian habitat that supports salmon recovery and meets ESA requirements, and cost-effective management for levee sponsors and the Corps?

Answer. The results of the initial ERDC vegetation research indicated that:

—In some cases, tree roots could have a potential shallow reinforcing effect that improves slope stability, but the weight of the tree and wind loads on the tree could have a negative impact on overall deeper seated slope stability; and

—At some locations where a tree was found to increase the factor of safety under one set of conditions, that same tree was found to decrease the factor of safety when other likely conditions were considered.

Overall, impacts of vegetation on levees remains a complex topic, and the Corps intends to conduct additional research and work with external scientific professionals to further identify future vegetation research topics that address both short-term and long-term needs. A follow-up ERDC report on this topic is being developed.

QUESTIONS SUBMITTED BY SENATOR MARY L. LANDRIEU

Question. Secretary Darcy and Major General Temple, thank you for your testimony today. As you know, Corps of Engineers projects are vitally important in Louisiana. For decades, the people of my State have been fighting a noble battle to save the most productive and environmentally significant coast and delta in the world. We are losing 25 to 35 square miles of wetlands per year—about a football field an hour—which places millions of lives and critical national resources at alarming risk.

While I have concerns about many Corps issues, I recognize that the Corps has consistently been woefully underfunded, which presents great challenges in addressing the needs of Louisiana and the Nation.

I am pleased to see that the Administration requested funding for Louisiana Coastal Area projects. However, we simply must find a way to make greater investment in critical flood protection, navigation, and restoration projects. Some people may say that this country cannot afford these investments—I say we cannot afford not to make them. Last year's historic flooding along the Mississippi River provided a perfect example of how wise and timely investment in construction and maintenance can save lives and resources.

Since 2008, the Corps' construction budget has been reduced by more than 50 percent, yet our backlog is greater than $60 billion in projects nationwide. This near halt in construction funding has dire consequences across the country. But it is most concerning after what we learned in Louisiana from Hurricanes Katrina and Rita—the approach of "patch and pray" when it comes to flood protection does not work.

I also have continued concerns about insufficient funding to address the Nation's dredging needs, particularly when channel users pay a fee that would cover the costs, but the total amount being collected is not being used for dredging. On average, full channel dimensions are available only one-third of the time at the busiest 59 harbors in the United States. I am pleased that the budget provides a 12-percent increase from last year's request for use of Harbor Maintenance Fund dollars, in-

cluding an increase for dredging on the Lower Mississippi, but this still will not meet the needs of the Nation or the State of Louisiana.

As you know, I have been frustrated by the number of years the Corps spends studying projects. In Louisiana, time is not on our side, and we cannot afford 10 years to study flood control and restoration projects. I understand the Corps is working toward more efficient processes. Can you provide some details about the Corps efforts to decrease the number of years spent studying projects?

Answer. A new planning modernization initiative was introduced in January 2011 that is focused on risk-based scoping to define the appropriate levels of detail for conducting investigations, so that recommendations can be captured, succinctly documented, and completed within a goal of 18 months. Corps leadership has issued guidance mandating all typical feasibility studies be completed in 18–36 months. The proposed process should dramatically shorten the amount of time and cost of conducting planning studies and increase corporate and individual accountability for decisions. This process will save time and money for both the Federal Government and the project sponsors.

As part of this initiative, all ongoing feasibility studies are under review. The Corps will reclassify to inactive those studies with limited likelihood of success, so funding can be focused on the most credible and viable projects to improve feasibility study execution and delivery. Studies that are classified as inactive will be considered for future year funding, but this approach will enable the Corps to more efficiently fund those studies that are most likely to result in high-performing projects.

I continue to hear from a number of concerned ports, businesses, and citizens about consistent navigability along the Lower Mississippi River. The Corps was responsive to these concerns and provided additional dredging dollars earlier this year, but I believe we need to be more proactive. The Mississippi is the central artery for navigation for nearly the entire Nation. As you know, 40 percent of the entire continent is drained by the Mississippi River Delta. This drainage basin (approximately 1,234,700 square miles) covers about 40 percent of the United States and ranks as the fifth largest in the world.

The inland waterways of the United States include more than 25,000 miles (40,000 km) of navigable waters. Much of the commercially important waterways of the United States consist of the Mississippi River System—the Mississippi River and connecting waterways.

Question. I appreciate the increase for dredging on the Lower Mississippi, but does your request provide enough funds to ensure that the Mississippi River remains open for business at the maximum authorized depths?

Answer. The Corps will continue to keep the river open for navigation, except during flood or other emergencies. The river will be dredged to the maximum authorized depth in some areas. In other reaches, there could be some reductions in channel width at certain times of the year, as is the case with other navigation projects around the country. The budget includes $81.7 million for the Lower Mississippi River Baton Rouge to the Gulf project, which is the highest amount ever budgeted for this project. The Corps monitors the channel conditions on a regular basis and uses the information to schedule dredging activities and maintain navigation.

Question. How are you balancing this critical need with the needs that other essential waterways are facing across the State of Louisiana and the Nation?

Answer. The Corps focuses on funding those navigation projects with the highest level of commercial usage, greatest risk of failure, and greatest economic consequences. Other factors taken into consideration include:

—whether the project serves as a critical harbor of refuge or a subsistence harbor, or supports public transportation, U.S. Coast Guard search and rescue operations, the national defense, or other Federal agency use; and

—the reliance on marine transportation for energy generation or home heating oil deliveries, and the level of commercial use (albeit less than a medium level of commercial use).

INLAND WATERWAYS

Question. Ms. Darcy, I have grave concerns regarding the Olmsted Lock and Dam project. This project was authorized by the Congress in the Water Resources Development Act of 1988 at an estimated project total cost of $775 million. The most recent cost estimate is more than $3 billion. The August 1985 Corps of Engineers feasibility report that the Congress used to authorize the project in 1988 assumed a 7-year duration. Funds to initiate construction of the Olmsted project were appropriated in fiscal year 1991, which means the project should have been complete in 1998.

Can you provide an update on the project's current status and an explanation of the inordinate delays and the cost increases associated with those delays? Would you say it about 50-percent complete? What is the Corps projection for completion year?

Answer. The Olmsted cost increase to $2.918 billion (October 2011 price levels) is attributed primarily to low initial estimate, which increased substantially in light of construction and contractual complexities associated with the innovative "in-the-wet" construction technique. This method also lengthened the duration of construction which pushed costs into an unanticipated period of higher than average inflation associated with building materials utilized for construction.

There are several factors that have contributed to the low initial cost estimate. Factors that were unknown when the project was authorized include the negative impacts on productivity due to river conditions (elevation and velocities) and the complexity of shell fabrication necessitated by the seismic condition at the site. Early on, a decision was made to use the innovative "in-the-wet" construction method. After constructing and setting the first set of shells in 2010, the government and contractor realized that the effort associated with fabrication and setting these large pieces of precast concrete and filling them with tremie concrete was not like any work they had previously experienced or previously had estimated. The construction challenges associated with developing this innovative method of construction have been overcome, but required a lot more effort than was originally envisioned.

Roughly 77 percent of the increase in the estimated total cost of the project, in real terms (above inflation) is associated with the increase in the cost of constructing the dam.

The project will be approximately 50-percent complete by the end of fiscal year 2012.

The Army Corps is working on a Post Authorization Change Report on the Locks and Dams 52 and 53 Replacement project (Olmsted Locks and Dam), Illinois and Kentucky. The report re-estimates the project's benefits and costs and on that basis recommends that the Congress raise the authorized total cost for the project to $2.918 billion (October 2011 price levels). This is roughly a 95-percent increase in real terms from the total cost now authorized—$775 million (October 1987 price levels). The budget includes a general provision to authorize this proposed increase in the total cost for the project, and provides $144 million to continue construction of the project in fiscal year 2013. The Post Authorization Change Report is currently under review and is expected to be transmitted to the Congress shortly.

The report estimates that the Olmsted Locks and Dam part of the project will become operational in fiscal year 2020, based on the minimal project features required for the dam to hold the pool and pass navigation through the locks. Physical Completion for the dam contract is projected to be in fiscal year 2021, including contractor de-mobilization and equipment salvage. The remainder of the work, including other required facilities, buildings and grounds, river dikes, demolition of Locks and Dams 52 and 53 and permanent operating equipment is projected to be finished in fiscal year 2024, thus completing the project.

The schedule in the report assumes that the Corps will spend an average of about $150 million per year on this project, consistent with recent funding levels and the level of receipts to the Inland Waterways Trust Fund (IWTF) under current law.

The report estimates that the maximum that the Corps could use efficiently and effectively on the remaining work on this project is around $215 million per year, or roughly $65 million more per year than the $150 million per year funding stream assumed in this report. Enactment of legislation that provides additional receipts to the IWTF would be necessary to reach the higher level of funding, which could cut up to 3 years from the project schedule, resulting in savings of approximately $150 million.

Question. What is the Corps doing to address concerns about the experimental "in-the-wet" construction approach currently being used to construct the project? Have you considered going back to the traditional cofferdam construction approach?

Answer. The Corps has assembled a team of experts to consider alternative construction techniques. The team is developing a concept level design for "in-the-dry" construction to a degree that can be used to prepare a reliable cost estimate and schedule suitable for comparison to the ongoing "in-the-wet" construction for the navigable pass portion of the dam. The Corps will evaluate the team's recommendation based on the concept level design and certified cost estimate by the summer 2012 to determine the most cost-effective way to complete construction.

Question. What impact do the delays and cost increases have on other inland waterway construction projects? (Note: The Inner Harbor Navigation Canal Lock Replacement Project has been waiting for replacement for more than 50 years.)

Answer. For the Civil Works program as a whole, completing the Olmsted project is a priority. Based on the current level of revenues to the IWTF, the Post Authorization Change Report includes a schedule based on continued funding of the Olmsted project at approximately $150 million annually. Enactment of legislation that provides additional receipts to the IWTF would be necessary to reach the higher level of funding for the Olmsted project, which could cut up to 3 years from its schedule and also result in savings of approximately $150 million. Work on some other inland waterways projects is being suspended due to a lack of resources in the Trust Fund to continue construction. This highlights the importance of enacting a long-term mechanism to increase receipts to the IWTF.

Question. I understand that by September 30, more than $748 million will have been allocated from the IWTF for the Olmsted project. This means that the inland waterway industry has already paid double the amount that was intended when the project was authorized, the same is true for the general taxpayer.

What are the average annual economic benefits that the Olmsted project is expected to return to our national economy when the project is finally completed? Is this average annual economic benefits figure also a measure of the cost to the Nation's economy of each year that the Olmsted project's completion is delayed?

Answer. Average annual net benefits, that is, total average annual benefits less the total annual construction, operation, and maintenance costs needed to generate those benefits, is an appropriate measure of the long-term economic impact of the Olmsted project. Economic analyses in the draft Olmsted Locks and Dam Post Authorization Change Report, which is currently under review, indicate that the Olmsted project will generate an estimated $875 million in total average annual National Economic Development (NED) benefits. The average annual cost required to generate those NED benefits is estimated as $235 million. Thus, the indicated average annual net benefit is an estimated $640 million.

These estimates reflect differences in benefits and costs over a theoretical 50-year period, after discounting. They do not reflect the benefits and costs associated with any particular subset of those years, such as the actual construction period. The estimates also are based on a variable discount rate, as provided in section 80 of the Water Resources Development Act of 1974, which does not reflect the long-term opportunity cost of capital for the economy as a whole. Finally, any delay in project completion at this point is due to the low level of receipts in the IWTF. The Administration has proposed legislation to address that problem.

Question. From this point forward, what is the amount of additional economic benefits that will be lost to the Nation's economy because of further delays in the Olmsted project's completion?

Answer. The Olmsted cost increase to $2.918 billion (October 2011 price levels) is attributed primarily to a low initial estimate, which increased substantially in light of construction and contractual complexities associated with the innovative "in-the-wet" construction technique. This method also lengthened the duration of construction, which pushed costs into an unanticipated period of higher than average inflation associated with building materials utilized for construction.

The schedule for this project reflects the nature of the work that remains. It changes over time, as the Corps incorporates lessons learned and reassesses the challenges that it will encounter in completing this complex engineering project. When the project is complete, the Nation's economy will realize all of the project's benefits. The "delay" reflects the magnitude of the challenge, which has been more daunting than expected.

For the 91 million tons of traffic that pass through Locks and Dam 52 and the 81 million tons that pass through Locks and Dam 53 annually, Olmsted offers a new reliable project in place of the two aging and unreliable projects. Much of the savings estimated in the Post Authorization Change Report occur from avoiding anticipated cyclical lock maintenance service disruptions at Locks and Dams 52 and 53. Completing Olmsted will also save $32 million annually in Federal maintenance costs now spent to maintain the locks and dams to keep them operating.

BENEFICIAL USE OF DREDGED MATERIALS

Question. I understand that approximately 50 million cubic yards of dredged material are dumped into the ocean annually.

Can you provide any general data about how beneficial uses—such as nourishment of beaches with clean sand or development of wetland habitats—compare to current and other alternate disposal options?

Answer. The Corps strives to use dredged material beneficially when technically feasible, environmentally acceptable, and cost effective. Corps regulations (CFR 335.7, 53 FR 14902) require the Corps to identify the least costly dredged material

placement alternative that is consistent with sound engineering practices and meets all Federal environmental requirements. This is known as the Federal Standard or Base Plan. In some cases dredged material may be used beneficially at about the same cost as the Federal Standard. However, the majority of beneficial use options are typically more costly than other placement options, and there would need to be a non-Federal sponsor willing to pay all or a portion of the additional costs beyond the placement method found to be the least costly, environmentally acceptable method for the navigation project.

Question. Can you tell us more about the Corps Regional Sediment Management Program? I understand it is still in its infancy but am interested in hearing about its successes and about plans to expand the program.

Answer. The Regional Sediment Management (RSM) program supports sustainable solutions to optimize the use of sediments to benefit a region. Under the RSM program, the Corps has been successful in identifying and understanding regional sediment transport processes along the Nation's shorelines and is now applying this knowledge to implement solutions to better manage and use sediments. These solutions span multiple projects, programs, State, local, and political boundaries and allow the Corps to better manage sediment regionally.

Examples of key successes of the RSM program include the Jacksonville District's St. Johns County, Florida RSM initiative, which linked navigation channel maintenance dredging with the adjacent shore protection project to leverage funds, technical capabilities, and most importantly, manage the sediment to accomplish the missions of both projects. The Mobile District is working with stakeholders to develop an RSM strategy to place material dredged from the Upper Mobile Harbor within Mobile Bay to create 1,000 acres of marsh habitat. The strategy will reduce the amount of sediment taken to the offshore placement area 40-miles south of the Upper Mobile Bay navigation channel and provide environmental benefits. The Portland District has collaborated with stakeholders to identify and permit four near-shore placement areas for the mouth of the Columbia River. Rather than placing material in the offshore deepwater placement area, where sediment is lost to the system, the material will be placed in the new near-shore sites to feed adjacent shorelines, create environmental habitat, and assist with maintaining the jetty infrastructure by reducing erosion along the base of the structure.

The RSM program will continue to move forward engaging stakeholders to adopt regional approaches to sediment management. Approximately $1.8 million is included in the fiscal year 2013 budget for the RSM program.

WETLANDS MITIGATION

Question. The Corps New Orleans District Office recently adopted the Modified Charleston Method (MCM) to determine mitigation requirements for 404 permits. I understand that in some cases, the mitigation ratio has more than doubled. This drastic increase in mitigation requirements has caused a significant economic impact and has the potential to bankrupt vital public works projects and development efforts.

The New Orleans District's response to public comments on the adoption of the new method states that they did "not have the resources to conduct an economic impact study" regarding the impacts of MCM implementation. How is the Corps working to balance environmental impact, economic concerns, and the need to proceed with important public works projects?

Answer. An economic analysis is not required prior to adopting and implementing impact and mitigation assessment methodologies. However, the Corps does consider the effects to the regulated public when adopting new policies or guidance. In this case, the need to provide applicants and our regulatory staff with a rapid and repeatable method to assess impacts and mitigation in a consistent and predictable manner was a major consideration in the adoption of the MCM. When planning projects that may require work in wetlands, applicants should be aware that the Corps evaluates each project to determine compensatory mitigation requirements for unavoidable impacts in accordance with the Federal mitigation rule. The applicant can use the MCM to assess the impacts and to determine the amount of mitigation that may be required and then contact existing mitigation banks within the watershed to get an estimate of the mitigation cost. This information may be used by the applicant in its economic analysis for its proposal. The applicant may determine that the cost of mitigation is excessive and then work to redesign the project to avoid or minimize wetland impacts so that costs associated with mitigation are reduced.

We have examined the impacts of the MCM on mitigation requirements for permits issued between May 2011 and October 2011 and our analysis reveals that the

mitigation ratios have increased from 1.6:1 to 2.4:1 on an acre basis. Although this shows an increase, the ratio does not represent a doubling of mitigation requirements.

Subsequent to the publication of the Federal Mitigation Rule in April 2008, applicants are required to include in their application ". . . a statement describing how impacts to waters of the United States are to be avoided and minimized. The application must also include either a statement describing how impacts to waters of the United States are to be compensated for or a statement explaining why compensatory mitigation should not be required for the proposed impacts." Our mitigation rule encourages the use of assessment tools, if available, when determining mitigation requirements.

A permit is issued if the district commander determines that the proposed project complies with the section 404(b)(1) guidelines and is not contrary to the public interest. Mitigation for unavoidable impacts is part of this determination. Our goal is to provide applicants with a balanced decisionmaking process to ensure aquatic resource protection while allowing economic development to move forward in accordance with Federal laws and regulations.

New Orleans District MCM is an improvement over the previous process used for reviewing mitigation proposals. Previous mitigation estimates were based on the best professional judgment of the individual project managers reviewing the mitigation proposal. Comparatively, the MCM methodology provides a framework for more consistent, repeatable, and objective results. The MCM is rapid enough for the applicant to use and provides the applicant the ability to estimate their mitigation requirements based on the types of resources they propose to impact and other factors. Other factors that are considered include those that are related to the type of impact that is proposed, such as rarity of the habitat, habitat condition, degree of hydrologic disturbance, length of time impacts are expected to last, the type of impact (e.g. clearing, draining, dredging, filling, etc.), and potential cumulative impacts. Some of the mitigation factors considered include type of mitigation (re-establishment, rehabilitation, enhancement, etc.), the type of legal protection the mitigation site will have, the time it will take to restore lost functions, and when the mitigation will be performed.

QUESTIONS SUBMITTED BY SENATOR FRANK R. LAUTENBERG

Question. I was pleased to see that the fiscal year 2013 budget includes $1 million for a study to find a long-term solution to chronic flooding in the Passaic River Basin. However, it will take at least 3 years for construction to begin on a solution. How can the Corps expedite this project to ensure that families in the basin have flood protection as soon as possible?

Answer. The Corps is currently realigning all feasibility studies to complete the most viable studies within 3 years. This process will expedite projects that are both likely to be found in the Federal interest and have strong sponsor support to be recommended for new start construction. The first phase of the Passaic River Basin study is designed to provide the non-Federal sponsor with an opportunity to determine alternative(s) on which to proceed to a Detailed Analysis Phase.

Question. The budget requests funding for six new Army Corps studies. However, the budget does not include funding for several critical ongoing New Jersey studies, including the Rahway River Basin, the South River-Raritan River Basin, the Millstone River-Stony Brook and the Peckman River Basin projects.

What criteria did the Army Corps use to determine which projects were included in the budget request? For all categories of project activity and budget accounts, please include specific factors as well as an explanation of how each factor influenced the decisionmaking process. If there was a benefit to cost-ratio threshold that had to be met, please indicate what that value was for each category.

Answer. The four New Jersey studies, the Rahway River Basin, the South River-Raritan River Basin, the Millstone River-Stony Brook, and the Peckman River Basin are all flood risk management studies. The primary criteria that the Army used to determine which studies were included in the budget for the Flood Risk Management business line were:

—study phase;
—study completion date;
—population at risk which is represented by the number of people living, working and transient located in the study inundation area for the design level recommended;
—population affected by flooding which is the number of people located in floodplain afforded risk reduction by the project at the design level;

—the flooding risk depth; and

—benefit to cost ratio for preconstruction engineering and design projects.

The Army also takes other factors into account, including the potential risk reduction, the environmental benefits to a community, and leveraging Corps resources to provide the highest return for the Nation.

Question. What specific factors led to the decision to exclude the following New Jersey projects from the budget request: Rahway River Basin, South River-Raritan River Basin and the Stony Brook-Millstone River and the Peckman River Basin? Please include a detailed explanation for each project.

Answer. While there are many worthwhile programs, projects, and activities nationwide, the fiscal year 2013 budget focused on the highest performing studies nationally. Each study was evaluated based on its performance, including public safety as well as economic and environmental benefits. The specific factors that led to the decisions to exclude the four New Jersey projects from the budget request are:

Rahway River Basin, New Jersey.—The population at risk is approximately 23,000 people and the population affected by flooding is approximately 2,000 people. The flooding risk depth is 10 feet. This feasibility study was not included in the fiscal year 2013 budget due to low population affected by flooding relative to other competing needs elsewhere in the Nation.

South River-Raritan River Basin, New Jersey.—The population at risk is approximately 146,000 people, and the population affected is approximately 21,000 people. The benefit to cost ratio for this project is 2.2 to 1. The flooding risk depth is 13 feet. This project was not included in the fiscal year 2013 budget due to low population affected by flooding relative to other competing needs elsewhere in the Nation and the benefit to cost ratio of 2.2 to 1 that would make this project a lower priority for consideration of future construction funding.

Stony Brook, Millstone River Basin, New Jersey.—The population at risk is approximately 125,000 people and the population affected by flooding is approximately 5,000 people. The flooding risk depth is 9 feet. This feasibility study was not included in the fiscal year 2013 budget due to low population affected by flooding relative to other competing needs elsewhere in the Nation.

Peckman River Basin, New Jersey.—The population at risk is approximately 265,000 people and the population affected by flooding is approximately 172,000 people. The flooding risk depth is 7 feet. This study was not included in the fiscal year 2013 budget due to the low population affected by flooding relative to other competing needs elsewhere in the Nation.

Question. What specific factors led to the decision to include in the budget request only project monitoring funds for the Barnegat Inlet to Little Egg Harbor Inlet project and to exclude the Townsends Inlet to Cape May Inlet project? Please include a detailed explanation for each project.

Answer. Both the Barnegat Inlet to Little Egg Harbor Inlet project and the Townsend Inlet to Cape May Inlet project were evaluated based on their performance, including contributions to public safety as well as economic and environmental benefits of each project. Barnegat Inlet to Little Egg Harbor Inlet was funded in fiscal year 2013 to continue project monitoring after construction. Construction funds for the Townsend Inlet to Cape May Inlet project were not included in the fiscal year 2013 budget due to the low benefit-cost ratio (BCR) (1.5 @ 7 percent) and relative ranking to many other competing needs throughout the Nation.

Question. I am pleased to see that the Corps has initiated a pilot program to decrease the time it takes to plan and study projects. What has the Corps learned to date from this pilot program? What are the next steps in this review? Can the Corps expand this effort to include a review of potential options to increase the pace of the complete lifecycle of projects, from initial study through the completion of construction?

Answer. The National Pilot Program for Feasibility Studies was initiated in February 2011 to identify means to shorten the timeframe for pre-authorization study completion while retaining the quality of the analyses and decisions. The Pilot Program has affirmed that increased focus on the scope of each study leads to more effective decision documents and that early characterization of the risk associated with each study, and management of that risk, reduces uncertainty in the iterative planning process. No additional pilot studies are being proposed at this time as the intent is to now apply the lessons learned from these pilot studies to all active feasibility studies by fiscal year 2014. The Corps continues to develop and refine methodologies and processes for feasibility studies across all business lines in a manner that will be sustainable, replicable, and will inform future Civil Works guidance.

QUESTIONS SUBMITTED BY SENATOR JON TESTER

MISSOURI RIVER FLOOD INFRASTRUCTURE RECOVERY

Question. The Corps has been spending down the emergency funding that was provided last year to rehabilitate damaged flood control structures following the flood of 2011. Brigadier General McMahon will want to review the progress of those repairs, the remaining work to be done, and the funding available. Of particular interest to Montana is the maintenance to the Fort Peck Dam. The area beneath the spillway was substantially washed out due to sustained record releases from the dam, which the Corp will need to address. In addition, of the three channels for releasing water from Fort Peck (powerhouse, spillway, and bypass tunnels) for several years, only two have been operable as the ring gates leading to the two bypass tunnels at Fort Peck have been inoperative. As the spillway will be out of commission during repairs, unless the ring gates are brought back online, the powerhouse will be the only apparatus for releasing water from Fort Peck. Doesn't prudence require repairs to the ring gates as an adjunct to the spillway repairs, and shouldn't that necessity allow emergency funds to be used for both projects?

Answer. The Corps is finalizing design for the spillway repair, and the current solution allows for flexibility to operate the spillway up to the levels observed in 2011 (if necessary) during repair activities without substantial additional damages. As a result, while the ring gates will require repair in the future, the current repair of the spillway structure is not dependent upon a fully functional ring gate system. Since the ring gates were not damaged during the flood of 2011, repair of the ring gates is not, on its own, eligible for use of emergency supplemental funding.

YELLOWSTONE RIVER CORRIDOR STUDY

Question. The Corps is in the process of funding a study of the cumulative effect of the Yellowstone River, in cooperation with the Yellowstone River Conservation District Council. The council has requested funds to complete the study by the end of 2015. This decision was prompted by members of the Technical Advisory Council who have been working on the study in some cases well past their retirement, but whose institutional memory is vital to the project. These members can not make an unlimited time commitment but have elected to see the project through to completion given that it does not extend past 2015. Will the Corps make every attempt to provide sufficient funds to complete the study by the Council's deadline?

Answer. The Corps is working with the project sponsor, as well as the State and Federal agencies involved in the study, to define what can realistically be achieved by the Council's 2015 deadline. The fiscal year 2013 budget includes $200,000 for this study. This study will be considered, along with many other worthwhile programs, projects, and activities for the funding necessary in fiscal year 2014 to complete a high quality study by the Council's 2015 deadline.

MISSOURI RIVER AUTHORIZED PURPOSES STUDY

Question. For several years, a study has been conducting a comprehensive re-examination of the economic benefits of the various authorized purposes of the Missouri River. Recently, flooding on the Missouri has made the importance of completing this study even more apparent. However, at the urging of the House, last year's appropriations bill included a rider prohibiting any use of funds for Missouri River Authorized Purposes Study (MRAPS). At the same time, some members from the basin have advocated for legislative changes to the authorized purposes, even in the absence of the completed study. The prohibition on funds for the study was, to some degree, academic, because the Corps has not budgeted to advance the study in either the fiscal year 2012 or fiscal year 2013 budget request. How will the Corps, through budgeting and use of discretionary funds, advance the critical work of re-examining the way the management of the river has performed, and further inform the Congress as policy changes are contemplated?

Answer. A limited amount of coordination may continue, as requested, utilizing unexpended carry over from fiscal year 2010, but the Corps is not expending any fiscal year 2012 funding to continue efforts on this study. The Army continues to evaluate each planning and construction project based on its individual merits, using the criteria applicable for that type of project and then to fund those projects and studies with the highest return to the Nation. This activity will continue to be considered along with many other worthwhile programs, projects, and activities competing for funds across the Nation.

INTAKE DAM REHABILITATION

Question. The Army Corps of Engineers is currently in the process of rehabilitating the irrigation diversion dam near Intake, Montana for passage of the pallid sturgeon. Since cost estimates for the original design skyrocketed to more than $100 million, USACE has been re-evaluating alternatives. It is critically important that whatever alternative is selected function well to meet the needs of both the irrigators and the wildlife. The intake to the irrigation canal must function well despite the absence of the originally modeled rock ramp. Furthermore, the fish passage must function to facilitate sturgeon recovery on the river. What has been the Corps's process of engaging with stakeholders as this project advances, and can they assure the subcommittee that the selected alternative will serve the needs of the irrigators and the sturgeon?

Answer. Phase I of this project to construct new headworks with fish screens is complete and currently operational. The structure will meet the full needs of irrigators for this irrigation season. The structure will also prevent annual entrainment of hundreds of thousands of native fish, including pallid sturgeon, into the irrigation canal. The existing dam crest, which has historically been maintained by the irrigation district to provide required flows into the canal, will continue to require maintenance to the required elevations. The rock ramp alternative would have required similar adjustment to the dam crest. Any future fish passage alternatives will continue to investigate the dam crest elevations within the overall project objectives to ensure the best opportunity for successful fish passage to include recovery of the pallid sturgeon.

Reformulation and feasibility evaluation of fish passage alternatives has been undertaken by a multiagency partnership including the Corps, Reclamation, Fish and Wildlife Service, Montana Department of Fish Game and Parks, the U.S. Environmental Protection Agency, the Lower Yellowstone irrigation district, and others. All of the agencies that are engaged in the decisionmaking process for this project are focused on meeting the needs of the irrigation district, the requirements of the Endangered Species Act as it applies to the pallid sturgeon, and all other applicable State and Federal regulations.

Regular engagement of the stakeholder agencies has been maintained throughout the design process via both face-to-face meetings and periodic teleconferences. A revised Environmental Assessment is currently under development and will have numerous levels of review to include Independent External Peer Review (IEPR), State and Federal agency reviews, and public review. Technical aspects of the project related to pallid sturgeon recovery are reviewed and approved by a multiagency Biological Review Team comprising some of the Nation's top experts on pallid sturgeon. All the above methods are aimed to ensure that the preferred alternative provides the best chance for successful pallid sturgeon recovery by utilizing the latest science available.

ST. MARY REHABILITATION

Question. The fiscal year 2010 appropriations bill included report language requesting that the Bureau of Reclamation combine National Environmental Policy Act compliance activities and preparation of design, specifications, and contract documents for the entire St. Mary's project including the diversion dam, fish passage structure, drop structures, siphon, and canal be combined as a single activity. What is the Bureau's timeline for completion of the Environmental Assessment that is currently being conducted on the St. Mary project?

Answer. The Army is not in a position to provide schedules for the Bureau of Reclamations' program and recommends that the question be referred to the Bureau.

LEVEE TASK FORCE

Question. The fiscal year 2012 Homeland Security Appropriations bill contained language requiring Army Corps of Engineers' to convene a task force to develop common standards for Federal Emergency Management Agency's (FEMA) levee certification studies and the Army Corps of Engineer's Levee Safety Program, such that the levee inspections performed by the Army Corps of Engineers may be used to satisfy FEMA's levee certification requirements. What is the progress of that task force, and when can the committee expect a report?

Answer. The language in Public Law 112–74 requires FEMA "to convene a task force with the Corps to better align NFIP levee accreditation requirements with levee inspections performed by or for the Corps such that information and data collected for either purpose can be used interchangeable to the maximum extent practicable toward satisfying levee accreditation requirements. FEMA shall provide a re-

port to the Committee on the progress of this task force within 6 months after the date of the enactment of this act."

FEMA has convened the task force and, while FEMA continues to have the lead, the Corps is an active participant on that task force. It is the intent of the task force to meet the time requirement for the progress report in the legislation.

QUESTIONS SUBMITTED BY SENATOR LAMAR ALEXANDER

Question. General Temple, it is my understanding that the Army Corps of Engineers (ACOE) owns more than 21,000 MW of power, and that a report put out by the ACOE indicates potentially enormous energy savings and a much lower carbon footprint for the U.S. Government if you modernize your existing hydropower assets.

What is the ACOE doing on this issue?

Answer. The Army is implementing a Hydropower Modernization Initiative (HMI) to address aging hydropower infrastructure issues for 197 generating units representing 54 power plants that are not directly funded by the Department of Energy's Bonneville Power Administration. HMI was established to assess and prioritize investment needs and opportunities across the Army's hydropower assets, which include replacing turbines, generators, and other major generating components with modern equipment that can deliver better efficiency and additional generating capability. The John H. Kerr power plant modernization was completed in July 2011 adding 65 MW of additional capacity to the plant. The Webbers Falls, Ozark and Denison power plants are being modernized, which will improve operating efficiency and increase energy production by 57,000 MWh.

Typically, when a hydroelectric power plant's generating unit is replaced or refurbished, efficiency improvements can range from 3 percent to as high as 10 percent. If the Corps modernizes its top 20 plants as identified in its Hydropower Modernization Initiative, efficiency gains on average would be 5 to 6 percent. This efficiency improvement represents a significant amount of additional renewal energy and avoided greenhouse gas emissions. For example, the initial assessment of prioritized equipment modernization and improvements in HMI would result in 830,000 MWh of additional renewable energy being produced. This amount of energy would avoid 630,000 tons of CO_2 emissions into the atmosphere and serve 87,400 additional American homes.

Question. What would it take for the ACOE to modernize and upgrade its facilities to result in more clean-energy production?

Answer. HMI study results show that an investment of approximately $4 billion over 20 years would improve reliability, restore design level efficiencies, and capture potential opportunities to improve and upgrade facilities.

OLMSTED LOCK AND DAM

Question. Secretary Darcy, buried within the Administration's budget request is a legislative proposal to increase the total project cost of the Olmsted project to roughly $3 billion. That is an increase of nearly $1 billion since you last reported to this subcommittee.

What has caused this spike in costs?

Answer. The Olmsted cost increase to $2.918 million (October 2011 price levels) is attributed primarily to a low initial estimate, which increased substantially in light of construction and contractual complexities associated with the innovative "in-the-wet" construction technique. This method also lengthened the duration of construction which pushed costs into an unanticipated period of higher than average inflation associated with building materials utilized for construction.

There are several factors that have contributed to the low initial cost estimate for the innovative "in-the-wet" construction technique. Unknown factors when the project was authorized include the negative impacts on productivity due to river conditions (elevation and velocities) and the complexity of shell fabrication necessitated by the seismic condition at the site. After constructing and setting the first set of shells in 2010, the government and contractor realized that the effort associated with fabrication and setting these large pieces of precast concrete and filing them with tremie concrete was not like any work they had previously experienced or previously had estimated. The construction challenges associated with developing this innovative method of construction have been overcome, but required a lot more effort than was originally envisioned. Roughly 77 percent of the increase in the estimated total cost of the project, in real terms, (above inflation), is associated with the increase in the cost of constructing the dam.

Question. Has an outside review of the cost, construction method, and schedule been performed?

Answer. The Corps conducted an Independent External Peer Review of the Post Authorization Change Report, which concurred with the revised cost estimate. The schedule went through and Agency Technical Review but was not reviewed externally. The project is currently undergoing an internal review of the methodology of construction for the dam ("in-the-wet" versus cofferdams) and the management controls in place for the cost-reimbursable contract.

Question. How much confidence should we have that this estimate reflects the ultimate cost of this project?

Answer. The cost estimate was developed using a variety of estimating methodologies by a diverse team of experienced U.S. Army Corps of Engineers (USACE) cost engineers and Hill International professional cost engineers and schedulers. A cost and schedule risk analysis was performed to establish the 80-percent confidence level for both cost and schedule. Quality control and quality assurance reviews were performed at various levels of product development. The Corps Cost Engineering Center of Expertise reviewed and certified the project cost and schedule estimates on November 9, 2011, confirming that the estimates and schedules were prepared in accordance with clearly established professional principles, practices, codes, and criteria.

Question. What is the projected completion of the project?

Answer. The schedule in the Post Authorization Change Report assumes that the Corps will spend an average of about $150 million per year on this project, consistent with recent funding levels and reflecting the level of receipts to the Inland Waterways Trust Fund (IWTF) under current law. Based on that assumption, the report estimates that the Olmsted Locks and Dam part of the project will become operational in fiscal year 2020, based on the minimal project features required for the dam to hold the pool and pass navigation through the locks. Physical completion for the dam contract is projected to be in fiscal year 2021, including contractor demobilization and equipment salvage. The remainder of the work, including other required facilities, buildings and grounds, river dikes, demolition of Locks and Dams 52 and 53 and permanent operating equipment is projected to be finished in fiscal year 2024, thus completing the project.

Question. What is your confidence in this time and cost estimate?

Answer. The cost estimate was developed using a variety of estimating methodologies by a diverse team of experienced USACE cost engineers and Hill International professional cost engineers and schedulers. A cost and schedule risk analysis was performed to establish the 80-percent confidence level for both cost and schedule. Quality control and quality assurance reviews were performed at various levels of product development. The Corps Cost Engineering Center of Expertise certified the project cost and schedule estimates on November 9, 2011.

Question. Have you considered changing construction methods to a more traditional construction method?

Answer. The Corps has assembled a team of experts to consider alternative construction techniques. The team is developing a concept level design for "in-the-dry" construction to a degree that can be used to prepare a reliable cost estimate and schedule suitable for comparison to the ongoing "in-the-wet" construction for the navigable pass portion of the dam. The Corps will evaluate the team's recommendation based on the concept level design and certified cost estimate by the summer 2012 to determine the most cost effective way to complete construction.

Question. Do you believe it might be prudent to consider a pause in this construction project in order for the Corps to re-evaluate the plan to complete this project in light of the cost increase?

Answer. The Corps is still evaluating which method to use to construct a portion of the Olmsted Dam and the timeframe for completing construction of the overall project.

INLAND WATERWAYS TRUST FUND

Question. Secretary Darcy, as you know I represent a State with an extensive inland waterway system with several of our aging locks and dams. I am concerned that the Administration continues to not address enhancing the revenues of the Inland Waterways Trust Fund (IWTF). Your announcement of the $1 billion cost increase on Olmsted Locks and Dam would seem to make finding a solution more urgent than ever.

It is my understanding that the current 20 cent per gallon fuel tax raises about $75–80 million annually. Is that correct?

Answer. Fuel tax revenues in fiscal year 2010 and fiscal year 2011 were approximately $74 million and $84 million, respectively. The projected revenues from the

existing diesel fuel tax are expected to increase to approximately $92 million in fiscal year 2012 and $95 million in fiscal year 2013.

Question. With the projected funding needs for Olmsted over this time period, what else will the Corps likely be able to do to address the needs of this aging inland waterway system?

Answer. In addition to providing $144 million for Olmsted, the fiscal year 2013 budget provides for completing major rehabilitation of Lock and Dam 27 on the Mississippi River and Lockport Lock and Dam on the Illinois Waterway, and continuing some funding for the Lower Monongahela River Locks and Dams 2, 3, and 4 project. Based on projected revenues from the current fuel tax, if Olmsted Locks and Dam is provided approximately $150 million annually, with $75 million funded from the IWTF, approximately $40 million to $45 million per year (depending upon the level of actual IWTF receipts) would be available annually for other IWTF cost-shared projects for several more years. One-half of those funds would come from the general fund of the Treasury; the other one-half would come from the IWTF. This highlights the importance of enacting a long-term mechanism to increase receipts to the IWTF.

Question. Would you agree that simply raising the fuel tax, at best is a band-aid solution to the long-term funding issues of the Inland Waterways System?

Answer. Yes, we do not favor that approach. The Administration submitted a vessel user fee proposal in September 2011, which if enacted in addition to the existing level of revenue from the fuel tax, as proposed, would raise sufficient revenues to finance needed construction. To enact an increase in the fuel tax substantial enough to provide the same level of revenues would require more than doubling the current fuel tax.

Question. It would seem to me that what we need is an entirely new way to finance the Trust Fund. Has the Administration given any thought to an entirely new way to realistically fund this system? For the Harbor Maintenance Trust Fund every imported item contributes to the maintenance fund. Wouldn't a similar funding mechanism for inland waterways provide a more robust funding sources as well as inflation protection?

Answer. The budget proposes an equitable way to finance the non-Federal share of this investment, which is the responsibility of the commercial users of these waterways under current law. In September 2011, as part of the President's Jobs bill proposal, the Administration submitted a legislative proposal to the Congress to reform the laws governing the IWTF. The proposal would provide an additional source of financing for major new investments in the inland waterways to support economic growth. It includes a new vessel user fee, which, if enacted, would supplement the revenue collected from the fuel tax, and would increase the total paid by commercial navigation users sufficiently to meet their share of the costs of activities financed from the IWTF. The proposal has a provision to prevent the IWTF from accumulating too much revenue and from being depleted. It has the potential to raise an additional $1.1 billion in additional revenue from the users over 10 years.

Question. Has any consideration been given to changing the cost sharing on Olmsted from the current 50/50 to something else such as 75 percent from the Treasury and 25 percent from the IWTF?

Answer. We do not favor that approach. The Olmsted Locks and Dam project should continue to be funded as provided in current law, under which requires construction is to be funded one-half from amounts appropriated from the general fund of the Treasury and one-half from amounts appropriated from the IWTF.

Question. Is the legislative proposal the same as proposed last year in the President's deficit reduction package?

Answer. The legislative proposal to reform the laws governing the IWTF is the legislative proposal President Obama transmitted to the Congress in September 2011, as part of his Jobs bill proposal. It would provide an additional source of financing for major new investments in the inland waterways to support economic growth.

Question. As I recall that proposal allowed the Assistant Secretary to raise fees as necessary to provide additional funds as well as continuing the current diesel tax?

Answer. Correct. The diesel fuel tax would continue to be assessed at the current rate of $0.20 per gallon, although the diesel fuel tax would be assessed on the existing 27 inland and intracoastal waterways as well as an additional 40 waterways that are not subject to the current tax, and the Secretary of the Army would set the rates for new vessel user fees on all 67 of the inland and intracoastal waterways.

Question. Do you know what these fees might consist of?

Answer. The legislation would impose a flat annual user fee on each vessel that transports commercial cargo on the inland waterways of the United States, which would be paid by the owner of the vessel. The Secretary of the Army would determine the amount and structure of the fee each fiscal year, with the goal of ensuring that the balance of receipts in the IWTF is sufficient to cover the user-financed share of the costs of inland waterways capital investment.

Question. Why are these additional revenues targeted for deficit reduction rather than for improving or replacing the aging infrastructure of the inland waterways system?

Answer. The proposal is not for the purpose of deficit reduction. The revenues would enable an increase in investments in construction and rehabilitation of inland waterways infrastructure.

Question. Have you been given any indication that legislation allowing fee increases is being considered in the House or Senate?

Answer. No, although there are bills that would increase the fuel tax.

FLOOD CONTROL AND COASTAL EMERGENCIES

Question. Can you update us on the progress you are making on repair flood and storm damages from the $1.7 billion that we appropriated in December?

Answer. The Corps is tracking progress on the Class I, II, and IIIB repairs. The classes are defined as follows:

—*Class I is Urgent and Compelling (Unsafe)*.—Heavily damaged projects that have breached or failed where there is a probable loss of life.

—*Class II is Urgent (Potentially Unsafe)*.—Damaged projects that are likely to fail where there is a probable loss of life and economic damage.

—Classes IIIA and IIIB are High Priority, including:

  —*Class IIIB (Conditionally Unsafe)*.—Damaged systems that are likely to fail where there is a potential for economic, environmental, and an indirect potential for loss of life.

  —*Class IIIA (High Impact to Navigation)*.—Damaged systems directly impacting high use navigation.

—*Class IV: Priority (Marginally Safe)*.—All other damaged systems not meeting Class I, II, or III above.

The Corps has made significant progress toward completing priority repairs. The Corps identified 11 Class I (urgent and compelling) projects and expects to complete interim protection for 10 projects by March 31, 2012. Full completion is expected (pre-event conditions restored) by March 31, 2013. There is one Class I project that anticipates completion by March 31, 2014. Similarly, the Corps identified 31 Class II (urgent) projects and expects completion of interim protection for 14 projects by March 31, 2012. Full completion is expected by March 31, 2013. Fourteen Class II repairs are anticipated to be complete by March 31, 2014, and three repairs expect completion after March 31, 2014. The Corps identified 31 Class IIIB (conditionally unsafe) projects and expects completion of interim protection for 19 projects by March 31, 2012. Full completion is expected by March 31, 2013. Twelve Class IIIB repairs are anticipated to complete by March 31.

Question. Will these funds allow you to make all of the necessary repairs to return these flood control structures to pre-disaster conditions?

Answer. A small portion of the costs of damage repairs is not covered by Presidential declarations and, therefore, not eligible for disaster relief funding. The funds will allow the Corps to make all critical repairs in areas that are covered by Presidential declarations.

Question. If not, are you budgeting for the necessary repairs through regular appropriations?

Answer. Many of the noncovered repairs from the 2011 floods successfully competed for fiscal year 2012 or fiscal year 2013 funding. Only lower priority repairs, which did not compete successfully, have been deferred and will be considered during formulation of the President's fiscal year 2014 budget.

Question. Will the flood control infrastructure on the Mississippi and Missouri Rivers, be able to provide protection from the high-water events expected this year?

Answer. Yes, Corps-owned infrastructure on the Mississippi and Missouri Rivers impacted by the 2011 Mississippi and Missouri River flood is operational at this time and will be able to provide acceptable level of interim protection from potential high water events that take place during the upcoming flood season. Along the Mississippi River interim repairs were initiated in several critical areas including Birds-Point New Madrid (BP–NM), Presidents Island and Meriwether-Cherokee to withstand possible high water in 2012. Permanent repairs in the BP–NM Floodway area are scheduled either complete by the 2013 flood season or to a level sufficient to

provide protection from an event similar to the 2011 flood and are still needed to ensure future operational safety and reliability. Damage assessments continue and additional required repairs may be identified.

In the lower Missouri Basin between Omaha and Kansas City Districts, repairs to the levee systems are in progress. Currently closure of breaches on 10 of the 13 systems has been accomplished. As we move into their flood season, traditionally late May through early July, we anticipate all breaches being closed. Any remaining vulnerabilities will be addressed through flood fighting, with on-site contractors available should that need arise.

Work to restore levees to their pre-2011 flood condition continues and is expected to complete on the Mississippi River Levees within a 3-year time-frame. Damage assessments continue and additional required repairs may be identified.

Question. How long do you project that it will take to restore these flood control structures to pre-flood conditions?

Answer. By March 31, 2014, 96 percent of the highest priority repairs are scheduled to be restored to pre-flood conditions.

PRINCIPLES AND GUIDELINES

Question. In fiscal years 2011 and 2012, the budget request proposed a new line item to prepare guidance for the revised Principles and Guidelines (P&G). It was not funded by the Congress in either year and the Congress directed that the current Principles and Guidelines should be used for fiscal year 2012. I note that this line is missing from your request for fiscal year 2013. Are the revisions of the P&G still going forward?

Answer. Yes. The Council for Environmental Quality (CEQ) leads the Administration's process of modernizing the 1983 P&G for Water Resources Planning.

Question. Are you aware of whether the Administration plans to release the revised P&G in fiscal year 2013?

Answer. The product of the first step in that revision process—called the Principles and Requirements—is currently under review within the Administration. Agency guidelines would be developed following the release of the final Principles and Requirements.

Question. Will the Corps still need new guidance to implement the revised Principles and Guidelines in fiscal year 2013?

Answer. Yes. CEQ is expected to direct agencies to develop their own procedures to conform to the interagency procedures (guidelines). Within the Corps, ER 1105–2–100 (known as the Planning Guidance Notebook) will need to be updated to incorporate new policies and procedures to reflect the revised principles and guidelines.

Question. Without this specific line item, how does the Corps plan to fund the guidance that needs to be prepared?

Answer. The budget includes funding under the Planning Support Program for updating planning guidance in general, a portion of which would be used to fund the guidance that needs to be prepared to reflect the revised principles and guidelines.

REGULATORY PROGRAM

Question. The budget request proposes $205 million for the Regulatory Program. That is an increase of $12 million or nearly 7 percent, over the fiscal year 2012 amount. As I recall, this program was funded at $189.6 million in fiscal year 2011, which is the last fiscal year that is completed. How many permits did the Corps issue in fiscal year 2011?

Answer. In fiscal year 2011, the Corps issued approximately 56,000 permits. In addition, the Corps finalized approximately 26,000 other regulatory actions in fiscal year 2011 and more than 58,000 Jurisdictional Determinations.

Question. For fiscal year 2012, the Congress provided $193 million for this program. Are you able to process permits in a timely manner in fiscal year 2012?

Answer. Yes. Our data indicate that we are able to process the majority of applications in a timely manner. We have established national performance goals for processing time for both general permits and individual permits, based on anticipated funding levels. The fiscal year 2012 goal for General Permits (GP) is to process 75 percent of all GP in 60 days or less. The fiscal year 2012 goal for Individual Permits is to process 50 percent of these actions in 120 days or less. There is regional variance in performance, although thus far in fiscal year 2012 the Corps is meeting or exceeding these goals on a national basis.

Program performance data over the past 5 years shows a direct correlation between funding levels and performance: the more funding is received, the higher the level of performance is achieved. In most years, most performance targets are met

nationally because the goals are tied to funding levels. Other program funding factors, such as increasing complexity, increased costs of litigation, and the need for technology and science to inform decisionmaking are not reflected in performance goal targets.

The program strives to deliver excellent customer service while providing legally defensible decisions based in sound science as expeditiously as possible. An increase is proposed in fiscal year 2013 to provide additional funds to Districts to sustain on-board staff, which will support increased performance and thereby increase the number of permit actions and associated program activities (e.g. mitigation site evaluations, compliance visits) completed by District staff. For the past years, funding increases have not kept up with increases in indirect expenses (rent, vehicle costs, etc.). Additional funds are needed to support existing staffing levels. The same or less funds will mean a decrease in full-time equivalents (FTEs), affecting permit review times and the number of jurisdictional determinations, permit evaluations, mitigation reviews, and compliance visits that can be completed.

Question. What is the average length of time for the processing of your permits?

Answer. The length of time to process an application depends on the type of permit requested and the complexity of the proposed action. Individual permit involve a public notice and agency coordination, are generally more complex, and are sometimes more controversial than activities that may be authorized by GP. In contrast, GP may require agency coordination but do not require a public notice and may only authorize projects that result in minimal adverse impacts to aquatic resources. To date, in fiscal year 2012, the average time to process an IP was 139 days and 28 days for a GP.

Question. Are you anticipating a significant increase in permitting activities in fiscal year 2013 or is an increase in staffing driving this cost increase?

Answer. The Army anticipates an increase in applications/decisions, jurisdictional determinations, agency coordination, and consultations, and other complex workload actions in fiscal year 2013. Staffing levels in fiscal year 2013 are anticipated to remain approximately equal or slightly decline from the current staffing levels in fiscal year 2012. Workload complexity is increasing as evidenced by a substantial increase in the number of projects requiring Environmental Impact Statements, projects requiring robust interagency coordination to include a marked increase in Endangered Species Act consultations. A 10-percent increase was noted above fiscal year 2011 levels in the total number of permit activities evaluated by USACE Districts.

HARBOR MAINTENANCE TRUST FUND

Question. The budget request for fiscal year 2013 anticipates $848 million to be contributed by the Harbor Maintenance Trust Fund for maintaining eligible harbors and waterways. That is a $90 million increase over what was proposed in the fiscal year 2012 budget. That is a good trend. Does this meet the needs of all of the eligible ports and waterways for the required maintenance?

Answer. The budget amount of $848 million for Harbor Maintenance Trust Fund eligible projects reflects an appropriate amount for operation and maintenance of the Nation's coastal harbors and channels for fiscal year 2013.

Question. How much additional funding would be required to maintain eligible ports and waterways to their authorized requirements?

Answer. The cost to dredge and maintain eligible coastal harbors and channels to their authorized depths and widths is estimated at approximately $1.35 billion per year for high and moderate commercial use projects and an additional $0.5 billion per year for low commercial use coastal projects.

Question. How many of the ports and waterways that you elected not to fund have not been proposed for funding in the previous 5 years in an administration budget?

Answer. A total of 832 coastal navigation projects have not been proposed for funding in the last six budgets (from fiscal year 2008 through fiscal year 2013).

Question. Were these projects economically justified at the time of their authorization and construction?

Answer. The majority of them were probably viewed as economically justified according to the laws and policies at the time of their authorization and construction, which may have been many decades ago.

Question. Was the maintenance of the projects over their 50-year economic life factored into that economic analysis?

Answer. Corps navigation studies typically evaluate project maintenance over a 50-year timeframe.

Question. If these ports are meeting the tonnage projections in the studies for which they were analyzed and authorized wouldn't it follow that maintaining them would have a positive net impact on the national economy?

Answer. Not necessarily. For example, the quality of the analysis has improved since many of these projects were authorized, and also varies from project to project. Even for a project that is meeting the tonnage projections from the project studies, the type of commodities and use of the project may have changed considerably since project construction. Operation, maintenance, and rehabilitation costs may also be higher than projected.

Question. Then how are we not funding these projects?

Answer. The allocation of funds considers the economic and safety return on investment, in comparison with other potential uses of the available funds throughout the Corps Civil Works mission areas, as well as the need to reduce the Federal deficit.

Question. If the Administration has no intention of funding these in the future due to the economics of the projects, wouldn't it be appropriate for the Administration to propose that these projects be deauthorized rather than ignoring this Federal obligation year in and year out?

Answer. The fiscal year 2013 budget is performance based. The condition of projects changes over time and projects that do not compete well in some years may compete better in the future. Projects with little or no Federal interest can be proposed for deauthorization.

QUESTIONS SUBMITTED BY SENATOR THAD COCHRAN

Question. The President's fiscal year 2013 budget request shows a decrease in funding for nearly every important Civil Works account: Construction, Operation and Maintenance, Mississippi River and Tributaries, and Investigations. However, there is a funding increase for the Corps Regulatory Program for operational oversight and management. It concerns me that the Administration is increasing your ability to impose regulations but decreasing your ability to perform vital functions such as maintenance dredging and flood protection. Can you explain this concerning trend?

Answer. In comparison to the fiscal year 2012 budget, the fiscal year 2013 budget includes increased funding for operation and maintenance, Mississippi River and Tributaries, Regulatory, and Emergency Management. The budget is performance-based and focuses on those investments that will yield high economic and environmental returns to the Nation or address a significant risk to public safety and the environment, as appropriate, within the bounds of our statutory authorities.

Question. I understand that the reimbursement from the Harbor Maintenance Trust Fund (HMTF) needs to be around $1.3 to $1.6 billion annually to meet the basic maintenance dredging needs in the Corps' maintenance inventory. What percentage of Harbor Maintenance Trust revenue is actually allocated towards harbor operation and maintenance costs each year?

Answer. Approximately 50 percent to 60 percent of HMTF receipts have been allocated toward harbor operation and maintenance costs since fiscal year 2007. The fiscal year 2013 budget increased funding for harbor maintenance and related work by $90 million, which is almost 12-percent above the level proposed in the fiscal year 2012 budget.

Question. Are the Administration and the Corps of Engineers considering ways to maximize use of the HMTF to address the critical needs of ports that must be dredged and deepened in preparation for the Panama Canal expansion?

Answer. The fiscal year 2013 budget allocated Civil Works funding based on performance. For activities funded from the HMTF the Corps uses performance criteria that focus on the economic and safety return from the investment in harbor maintenance and related work. In addition, the fiscal year 2013 budget gives priority to funding studies or preconstruction engineering and design for several proposed projects that would enable a port to accommodate larger vessels, which could transit the deepened Panama Canal, such as Boston Harbor, Brazos Island Harbor, Charleston Harbor, Houston Ship Chanel, Jacksonville Harbor, Savannah Harbor, and Wilmington Harbor; and also funds construction of ports such as New York and New Jersey.

Question. There has been discussion of the needs of ports located on the east and west coasts. Is the Corps fully cognizant of the needs and the significance of our Nation's ports located in the Gulf of Mexico as they relate to the Panama Canal expansion?

Answer. The Army is aware of the significance and needs of the gulf coast ports. The budget includes funding for deepening studies for both Brazos Island Harbor and the Houston Ship Channel.

QUESTIONS SUBMITTED BY SENATOR SUSAN COLLINS

Question. Assistant Secretary Darcy, for any direct impacts to jurisdictional wetlands, the Corps' New England District has published "guidelines" for compensatory mitigation. In the case of permanent preservation, those guidelines call for a mitigation ratio of at least 15:1. For some projects, this ratio is increased to 20:1, or even 25:1, based upon the discretionary application of the permit writers valuation of functions and values. Under the State of Maine's law, the mitigation ratio for preservation is 10:1.

Under the Corps "guidelines," if one acre of wetland area is impacted for a project, the Corps has required up to 25 acres to be permanently protected. This adds significant costs to potential projects that are key to our economic recovery.

For one project in Western Maine, a constituent sought to reduce the wetland impact for a project that had been previously approved by the Corps under its prior mitigation ratios. However, due to the new higher mitigation ratios, and the requirement of both preservation and in-lieu fees, the project has not gone forward. It is my understanding that the wetland impacts would have actually been reduced, but that still the Corps was asking for greater mitigation.

Does the Corps plan to review and revise its wetland mitigation guidelines, particularly in the New England District, so that well-designed and appropriately sited projects that would reduce wetland impacts are encouraged?

Answer. As a general requirement, in accordance with section 404 of the Clean Water Act (CWA), an activity's impacts to waters of the United States must be first avoided, then minimized, and lastly compensated. Therefore, by nature of the law, projects that would reduce wetland impacts are already encouraged.

The New England District's guidance has, for many years, recommended a 15:1 ratio for preservation, although this ratio may be lower or higher, depending on the functions of the wetland being impacted as well as the ecological value of the proposed preservation. The guidance is not binding and may be updated as necessary in the future based upon new policy, guidance, or science. The New England District works with applicants to avoid and minimize impacts to waters of the United States, consistent with the requirements in the Corps regulations. When projects result in less impact to aquatic resources, mitigation requirements may be substantially reduced.

Question. Assistant Secretary Darcy, there remains a great need in my State and others around the Nation when it comes to the dredging and maintenance needs at our small ports and harbors. Without the ability to direct funding to such activity, I believe we need to pay careful attention to ensure the water infrastructure needs of all States are met.

I am pleased to see $13 million included in the budget request for the dredging of Portland Harbor. Portland Harbor is the largest commercial port in Maine and it is one of the largest in New England. In 2009, the direct economic impact of Portland Harbor was estimated to be 3,668 jobs, $101 million in wages, and $209 million to the Gross State Product. An additional $142 million of economic impact extended beyond the immediate confines the harbor. This economic impact makes the maintenance dredging of the Federal Navigation Channel critically important.

I would also like to highlight the $30 million for operations and maintenance projects at "small, remote, or subsistence navigation" harbors and waterways that was included in the fiscal year 2012 enacted bill. This funding made a small project in Wells Harbor, Maine, possible, but many others in my State are still in need of funding.

What funding is proposed under the fiscal year 2013 budget request to meet the dredging and maintenance needs of the Nation's small ports and harbors? How do you respond to concerns that the Nation's smaller ports and harbors may be disadvantaged under the current Corps' cost-benefit metrics?

Answer. The President's fiscal year 2013 budget includes $40 million for low commercial use coastal ports and harbors. The Army focuses first on funding those projects that provide the greatest economic and safety return on investment to the Nation. For ports and harbors with a low level of commercial use, the Army also considers a range of factors such as whether the harbor is a critical harbor of refuge or a subsistence harbor, or supports public transportation, U.S. Coast Guard search and rescue operations, the national defense, or other Federal agency use; the reli-

ance on marine transportation for energy generation or home heating oil deliveries, and the level of commercial use (albeit less than a medium level of commercial use).

QUESTIONS SUBMITTED TO HON. MICHAEL L. CONNOR

QUESTIONS SUBMITTED BY SENATOR DIANNE FEINSTEIN

WATER BANKING

Question. Does Bureau of Reclamation (BOR) need additional flexibility on water banking to better manage water resources in the West?

Answer. BOR has authority for participation in water banks pursuant to section 101(d) of the Reclamation States Emergency Drought Relief Act of 1991 (Public Law 102–250, as amended). However, that authority is contingent upon Governors of the affected State or on a reservation making a request for temporary drought assistance and the Secretary of the Interior determining that assistance is merited, or upon the approval of a drought contingency plan. BOR was given additional specific authority to participate in water banks in the 2012 Consolidated Appropriations Act in the State of California. This authority enhanced water management flexibility. In particular, the act allows BOR to buy interests in water bank facilities and to pay water banking fees with Central Valley Project (CVP) water. BOR and the State of California are satisfied with the authorization, but note that it expires with the act at the end of the fiscal year. Our Lower Colorado (LC) Region has existing authority to participate in existing State water banking programs, and has issued its own regulations to correspond with water banking agreements among its States. It is unclear at this point if the same authority would be useful in other BOR regions or States.

Question. Is additional legislation needed to provide this flexibility?

Answer. It is unclear what additional authority might be needed across BOR and would depend on the extent of activity desired of BOR by the Congress in relation to water banks. The Mid-Pacific (MP) Region expects to use the authority enacted in 2012 for California and further legislation would be needed to extend it. Further determinations are needed to understand what authority exists, and therefore, what more authority would be needed, in the regions other than MP and LC. Our preliminary research indicates that BOR may lack authority to buy interests in water banks in other States.

Question. What impact does tiered pricing have on the agricultural water service contractors?

Answer. Depending on how a tiered pricing program's rates are structured, tiered pricing may provide an incentive to use water more efficiently, i.e., to use less water for crop practices that provide a lower net return compared to those crops and practices with a higher net return. This incentive is based on the concept that a direct relationship exists between the amount of irrigation water delivered to the farm and the amount the farmer pays for that water. The primary determinant of the effectiveness of tiered pricing is the change in the amount demanded relative to a change in the price (or price elasticity of demand). A rate structure that encourages conservation must effectively communicate the price of water at different levels of use to users. However, if changes in price do not result in corresponding changes to demand, a tiered pricing program will have a relatively small impact on conservation. There are a number of factors and conditions that may influence a tiered pricing program's impact on irrigators. Some of these include:

—the actual structure of the tiered pricing program;
—the efficiencies of existing water management practices;
—the cost of adopting new water technologies;
—the quantity of available water supplies versus the quantity demanded based on existing (and projected) cropping patterns; and
—the value of irrigated crops produced, as well as the potential for dryland crop production.

In the CVP, tiered pricing provisions of the Central Valley Project Improvement Act (CVPIA) are triggered when a water service contractor takes more than 80 percent of its total contract entitlement. Thus, in dry years when allocations are below 80 percent, CVPIA tiered pricing provisions do not apply. In addition, contracting actions for settlement contractors, interim contracts, and section 215 water, (which is considered to be outside of the contractor's own water allocation) is not subject to tiered pricing. Consequently, contractors that have the ability to receive additional water through transfers may be able to circumvent any potential conservation intended through the implementation of CVPIA tiered pricing.

One potential means of estimating the impact of CVPIA tiered pricing provisions to CVP water service contractors is to examine the amount of revenues collected through the application of tiered pricing provisions. BOR prepares and submits an annual financial report to the Senate Committee on Energy and Natural Resources, the Senate Committee on Appropriations, the House Committee on Natural Resources, and the House Committee on Appropriations describing CVP Restoration Fund revenues (receipts) and expenditures (uses). Revenues received from CVPIA tiered pricing provisions amounted to $327,067 in fiscal year 2010. This was less than 3 percent of nondiscretionary CVP Restoration Fund revenues ($11,132,008) and less than 0.7 percent of total CVP Restoration Fund revenues ($47,968,797) received in fiscal year 2010. The fact that the application of tiered pricing results in such a small percentage of total CVP Restoration Fund revenues suggests that CVPIA tiered pricing provisions likely have a relatively small financial impact on water users. However, determining whether tiered pricing encouraged or discouraged water conservation efforts in fiscal year 2010 is less clear.

Question. Do you believe that tiered pricing encourages or discourages conservation among contractors?

Answer. In general, charging higher rates for additional water tends to encourage conservation practices by water users (assuming water can legally be treated as a commodity and deliveries can be measured). However, irrigator response to a tiered pricing program is dependent on the factors listed above—with the primary determinant being how the tiers are structured.

CVP contractors located south of the Sacramento-San Joaquin Delta receive, on average, about 66 percent of their contractual amounts. As a result, the tiered pricing provisions of CVPIA generally have limited impact on these contractors in terms of conserving water.

Question. What about in dry years?

Answer. Generally, we would expect the effects of a tiered pricing program, in and of itself, to have less of an effect in encouraging conservation among irrigators during short-term, intermittent periods of water shortages, primarily because the higher priced tiers would not be triggered with a reduced water supply. However, as indicated above, additional factors might cause irrigators to respond in unanticipated ways.

As indicated above, the tiered pricing provisions of CVPIA do not take effect until contractors take more than 80 percent of their total contract entitlement. Thus, in dry years the higher tiered prices of CVPIA will not apply.

CENTRAL VALLEY PROJECT AND STATE WATER PROJECT

Question. How can BOR and the State Water Project (SWP) in California better improve their coordination so as to improve water supply reliability for both systems?

Answer. The CVP operators and the SWP operators are co-located and closely coordinate the operations of both projects. The Delta Mendota Canal (Federal)—California Aqueduct (State) Intertie will be operational this summer to improve water supply reliability.

SIERRA NEVADAS

Question. Do you believe there could be potential water salvage benefits from better forest management practices in the forests of the Sierra Nevadas?

Answer. Potential water salvage through restoration activities that improve water quality and quantity varies due to the distribution along the Sierra Nevada Mountains of precipitation, forest types, land designations, multiple-use management arrangements, and laws, regulations, and policies. In general, restoration activities on Sierra Nevada National Forest Service (NFS) forests and wet meadows improve water quality, water quantity, and streamflow regimens with the overall effect of improving California's water supplies. Restoration activities on these lands can protect water sources from degradation, as well as improve the capacity of our NFS lands to retain, filter, and release water during low-flow periods when it is needed the most.

Question. Do you have any suggestions as to how to determine if this could result in significant water savings?

Answer. In December 2009, six Federal agencies, including the U.S. Department of Agriculture (USDA), issued an Interim Federal Action Plan for the San Francisco Bay/Sacramento-San Joaquin Delta (Bay-Delta), describing a variety of Federal actions and investments the Administration has been undertaking or will take to help address California's water supply and ecological crises. Multiple agencies within USDA contribute to implement practices that have a high impact on water resources

in targeted landscapes. In 2010, USDA identified landscapes of national importance including national forests and private working lands in and around the California Bay-Delta, and updated the contribution each agency will make to the high impact on water resources goal, in the immediate future. The Forest Service is working with Natural Resources Conservation Service (NRCS) and the Farm Service Agency (FSA) to develop outcome-based measures for 2012 and subsequent years.

The Forest Service manages resources on NFS forests land to ensure that they are sustainable and productive for water, wildlife, rangelands, timber, and the multitude of other resources found on national forests and grasslands.

The NRCS has been developing interagency and nongovernmental organizations (NGOs) partnerships to improve and protect the health of the Bay-Delta headwaters by restoring forest lands and wet meadows.

USDA Secretary Tom Vilsack and Forest Service Chief Tidwell have made clear the Forest Service's important role in water and watershed management. Chief Tidwell has said that the Forest Service understands the need to manage for water rather than mitigate for water. Managing resources on NFS lands often involves striking a delicate balance. What one may perceive as less than desirable practices might actually be needed for restoration. Consequently, "better" forest management does not mean the same thing to everyone.

CALFED

Question. Your funding for CALFED is down nearly $4 million from fiscal year 2012. What is the primary reason for this decrease? Is this the start of a downward trend?

Answer. In the fiscal year 2012 enacted budget, BOR allocated an additional $2.5 million to support actions in the Interim Federal Action Plan from the additional $6 million in funds provided by the Congress under the Water Conservation and Delivery Studies, Projects and Activities Category that was not included in the President's request.

The fiscal year 2013 request accounts for increases from fiscal year 2012 and does not represent the beginning of a downward trend as the California Bay-Delta Restoration appropriation provides critical Federal support toward the co-equal goals of improved water supply reliability and an improved Bay-Delta eco-system.

KLAMATH SETTLEMENT

Question. Where are we on the Klamath settlement? Are we going to see significant increased budget requests for BOR when this settlement is resolved?

Answer. The Department of the Interior has not signed the Klamath Basin Restoration Agreement (KBRA) and the Congress has not acted on legislation introduced in the House and Senate to authorize a secretarial determination under the terms of the Klamath Hydroelectric Settlement Agreement (KHSA). However under existing law, the Department has the authority to provide water and power benefits as well as addresses our tribal trust and Endangered Species Act (ESA) obligations.

If the legislation is enacted, budget increases would be anticipated as the KBRA legislation would likely require specified levels of funding over the succeeding 15 years.

SOUTH DAKOTA PROJECTS

Question. I note that your budget request for rural water funding is increased. Will this funding level allow these projects to keep pace with inflation? My fear is that with these funding levels, these projects will never get completed. I am gratified to see that one of the projects in South Dakota is scheduled for completion in fiscal year 2013, but where are we on the others? Will they be completed on any sort of a reasonable timeline?

Answer. BOR is making progress on completing rural water projects throughout North and South Dakota, Montana, and New Mexico. The Mid-Dakota rural water project was completed in fiscal year 2006; numerous features within the Garrison Diversion Unit in North Dakota have been completed; and the Mni Wiconi Rural Water System is scheduled to be completed in 2013. Approximately $232 million in American Reinvestment and Recovery Act (ARRA) funds were provided to rural water to further construction on these projects. Due to the additional ARRA funding, Perkins County Rural Water Project received enough funding to complete construction based on the authorized appropriations ceiling.

The budget request for rural water is a 7-percent increase from the fiscal year 2012 enacted amount and an 11-percent increase from the fiscal year 2011 enacted amount.

The total Federal cost to complete the construction of ongoing projects in BOR is approximately $1.3 billion. The fiscal year 2013 President's request balances several priorities, including funding for constructing authorized rural water projects. Given the need to work within the framework of today's budget realities, as well as the need to be attentive to priorities associated with existing water and power infrastructure throughout the West, BOR is unable to fund all of the ongoing rural water projects at their full-capability levels.

We will continue to evaluate each project using the revised interim criteria and concentrate on finishing projects with the funding made available through appropriations.

The first priority for funding rural water projects is the required Operations and Maintenance (O&M) component, which is $18 million for fiscal year 2013. The rural water request for construction was developed using revised interim criteria (BOR used the same approach to allocate additional fiscal year 2012 funds). These revised interim criteria address BOR's program goals and objectives by incorporating factors such as time and financial resources committed, regional watershed perspective, urgent and compelling need, tribal members served, economic impacts, and water use efficiency. BOR allocated the funds based on each project's ability to use those funds to complete distinct construction segments which would significantly advance the provision of potable water to people.

Since 1980, the Congress has directed BOR to develop 13 individual rural water supply projects at a combined cost of more than $2.3 billion. Projects have been authorized with non-Federal contribution requirements ranging between 0 percent and 25 percent.

With a large backlog of rural water projects waiting to be constructed and limited funding available, BOR developed the revised interim criteria in order to apply a consistent and fair method for allocating funds.

SAN JOAQUIN RESTORATION FUND

Question. It is my understanding that the Friant surcharges that used to go into the CVP Restoration Fund now go into the San Joaquin Restoration Fund. However, where BOR used to appropriate those funds in the CVP Restoration Fund, that they are being treated differently in the San Joaquin Restoration Fund. Is it true that these funds are being collected but are not being appropriated as a part of the budget request?

Answer. No, BOR has requested discretionary appropriations to use funds deposited into the San Joaquin River Restoration Fund (SJRRF) in both the fiscal year 2012 and fiscal year 2013 budget requests. As described in section 10009 of Public Law 111–11, funds deposited into the SJRRF include the following:

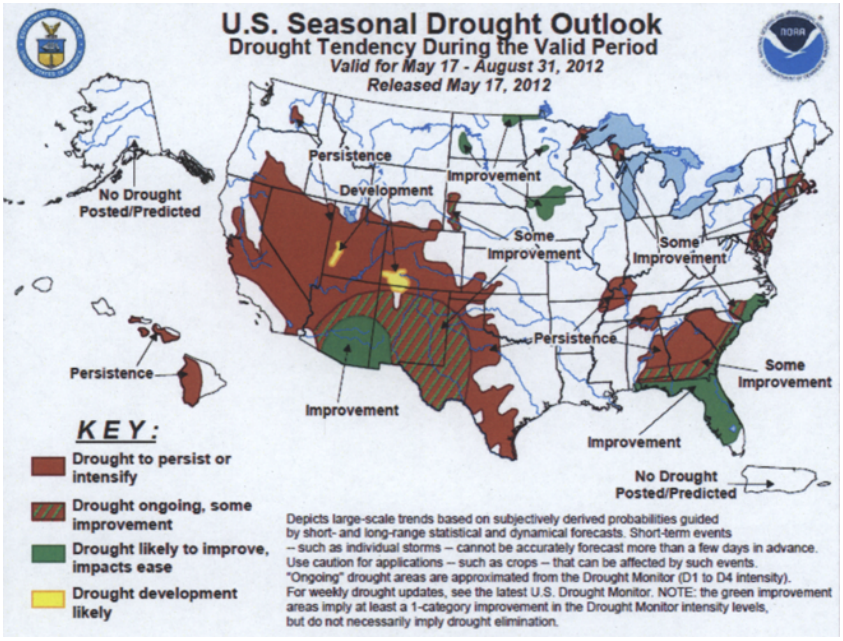
—the Friant Division Surcharge;
—the construction cost component of payments made by the Friant Division, Hidden Unit and Buchanan Unit long-term contractors;
—proceeds from the sale of water or land pursuant to the Settlement; and
—any non-Federal funds contributed for implementation of the Settlement.

The request made for discretionary appropriations to use funds deposited into the SJRRF in fiscal year 2012 and fiscal year 2013 reflects the funding needs of the restoration program.

CALIFORNIA DROUGHT

Question. What are the drought projections for this year?

Answer. Water supply conditions have improved significantly in March and April, but we still may be looking at seasonal runoff indices falling below historical average, especially in the San Joaquin Valley. The water supply in the southern part of California has not shown as much improvement due to less precipitation relative to Northern California and the difficulty of moving CVP water through the Delta. The U.S. Seasonal Drought Outlook released by National Oceanic and Atmospheric Administration (NOAA) on May 17, 2012, is attached.


U.S. Seasonal Drought Outlook
Drought Tendency During the Valid Period
Valid for May 17 - August 31, 2012
Released May 17, 2012
Persistence
Development
Improvement
No Drought
Posted/Predicted
Some
Improvement
Some
Improvement
Persistence
Persistence
Some
Improvement
Improvement
Improvement
No Drought
Posted/Predicted
KEY:
Drought to persist or intensify
Drought ongoing, some improvement
Drought likely to improve, impacts ease
Drought development likely
Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Short-term events -- such as individual storms -- cannot be accurately forecast more than a few days in advance. Use caution for applications -- such as crops -- that can be affected by such events. "Ongoing" drought areas are approximated from the Drought Monitor (D1 to D4 intensity). For weekly drought updates, see the latest U.S. Drought Monitor. NOTE: the green improvement areas imply at least a 1-category improvement in the Drought Monitor intensity levels, but do not necessarily imply drought elimination.

Question. What are the CVP Reservoirs (capacity) current storage as of May 18, 2012?

Answer. Shasta Reservoir (4,552,000 acre-feet) now 4,436,000 acre-feet; Trinity Reservoir (2,448,000 acre-feet) now 2,350,000 acre-feet; Folsom (977,000 acre-feet) now 908,000 acre-feet; New Melones (2,420,000 acre-feet) now 1,891,000 acre-feet; Millerton (520,000 acre-feet) now 430,000 acre-feet.

Question. What is the latest projection on water deliveries from BOR projects in California?

Answer. CVP is currently at 100 percent for the Sacramento River water rights settlement contractors, 100 percent for San Joaquin water rights exchange contractors, 100 percent of level 2 wildlife refuge supply, 100 percent for Agriculture and Municipal and Industrial (M&I) users north of the Delta, 75 percent of historical use for M&I users south of the Delta, and 40 percent for agricultural users south of the Delta.

BAY-DELTA CONSERVATION PLAN

Question. Commissioner Connor, a lot of concern has been expressed to me about the Bay-Delta Conservation Plan (BDCP) process. Can you tell us what your plans are for thoroughly studying all conveyance alternatives for moving water past the Delta, not just the large, isolated conveyance facility that has been identified?

Answer. While the current BDCP effects analysis evaluates a 15,000 cubic foot/second (cfs) facility, the BDCP Environmental Impact Report/Environmental Impact Statement (EIR/EIS) is evaluating a wide range of alternatives. There are 15 action alternatives and 1 no-action alternative which will be described in the BDCP EIR/EIS. The BDCP EIR/EIS is analyzing various combinations of water conveyance configurations including capacities ranging from 3,000 to 15,000 cfs, different operating scenarios, habitat restoration, and the effects on biological resources and water supply. In addition to conveyance, the alternatives include a variety of conveyance alignments and other specifications resulting from public scoping sessions conducted in 2008 and 2009 and the California Water Reform Act of 2009.

Question. How will studies of through-Delta conveyance figure into the overall BDCP process?

Answer. The information resulting from the EIR/EIS studies (including the through-Delta conveyance) being conducted will be used for the selection of the proposed project submitted by the State of California as part of ESA section 10 application process.

Question. After all diversion and nondiversion conveyance alternatives have been identified, it is essential that a thorough benefit-cost analysis be conducted for each. Can you tell us how you plan to go about that?

Answer. As part of the overall BDCP process, several analyses are being completed that address costs and benefits. First, the current BDCP draft documents include initial cost estimates for construction and implementation of a preliminary project. Secondly, the State of California is conducting an economic analysis of the benefits associated with BDCP alternatives. Lastly, the BDCP environmental documentation will include an analysis of the socioeconomic impacts associated with alternatives. This information will be used to determine the proposed project to be included in the ESA section 10 permit application.

DELTA AND DELTA COUNTIES

Question. Will the benefit-cost analyses you undertake include all foreseeable direct and indirect economic impacts of the Delta and Delta Counties, including the impacts of any new water infrastructure and habitat conservation projects? If not, why not?

Answer. Yes, the cost and benefits analysis identified above will assist in identifying the direct and indirect economic impacts of any new conveyance facility in the Delta.

BAY-DELTA CONSERVATION PLAN

Question. It is essential that all decisions made through the Bay-Delta Conservation Plan (BDCP) process be based on the best possible science. What steps are taking to ensure that all BDCP proposals are given an independent review that involves all stakeholders, including the Delta Counties?

Answer. BOR continues to reaffirm the Federal commitment to work in close partnership with the State and key stakeholders including the Delta Counties to pursue the development of the BDCP. BOR is fully committed to a sound and credible scientific basis for BDCP. This commitment has been unwavering and has been frequently reiterated. Credible science is essential for the BDCP to meet regulatory approval standards and to garner broad stakeholder support. The science issues underlying BDCP are long standing, complex, and, in certain cases, contentious. Federal agencies have engaged independent science review under the Delta Stewardship Council's Delta Science Program and are in partnership with the State, working towards a sound and credible scientific basis for the BDCP.

Question. Does the BDCP process include establishing through-Delta flow standards, consistent with California's water rights priority system and statutory protections of area of origin prior to the adoption of BDCP? If so, please describe that process.

Answer. The BDCP process is not establishing new through-Delta flow standards. However, any BDCP proposed project must comply with State water rights, including State Water Resources Control Board flow requirements.

Question. Does the BDCP process include a science-based peer-reviewed analysis of water amounts and flows needed for use, under current law, in the Delta for determining available surplus water supply, and does the BDCP restrict the exporting of water from the Delta to only surplus water?

Answer. Yes, any water conveyed as part of BDCP must meet beneficial use standards as required by State law. No, the working assumption of BDCP does not include any reliance on surplus water.

TITLE XVI WATER RECLAMATION AND REUSE

Question. In your fiscal year 2013 budget request, you identify water conservation as one of BOR's priority goals. Can you tell us what role the title XVI Water Reclamation and Reuse program has played and will continue to play in your efforts to achieve that goal?

Answer. BOR's Priority Goal for Water Conservation is to enable capability to increase available water supply by 730,000 acre-feet of water by the end of fiscal year 2013. As a result of fiscal year 2010 and fiscal year 2011 funding, the title XVI program has contributed more than 25,000 acre-feet to the priority goal. Title XVI projects are a key part of BOR's efforts to address water supply sustainability and will continue to make an important contribution toward this priority goal. Fiscal years 2012 and 2013 funding for title XVI projects will result in additional contributions to the goal.

Question. The subcommittee is aware of the priority that BOR places on title XVI projects that seek to address water supply needs on a watershed basis. Does BOR agree that there is an opportunity to enhance the program's effectiveness through

the advancement of regional-scale projects that include multiple jurisdictions and generate environmental as well as water supply benefits?

Answer. In 2010, BOR established funding criteria for the title XVI program after incorporating comments from title XVI project sponsors, members of the public, and others (including one Member of Congress). The criteria are intended to meet a number of important program goals, such as increasing water supply and reducing the need to develop new water supplies, addressing environmental concerns, and exploring the use of renewable energy as part of water reuse, among others. As you point out, the criteria also address the extent to which a project incorporates a watershed-based approach. In fact, the criteria provide significant consideration of the extent to which a project implements a regional planning effort or includes collaborative partnerships among multiple entities to meet the needs of a region or watershed. BOR agrees that regional scale projects that include multiple partners and generate significant environmental benefits are important, and we are confident that BOR's existing funding criteria provide ample opportunity for sponsors of those projects to receive additional consideration based on those benefits. At the same time, BOR plans to review this year's process prior to development of next year's funding opportunity to ensure that title XVI program funding is allocated as effectively as possible.

Question. These regional projects can require longer planning and construction timeframes than other more narrowly focused projects. What steps has BOR taken within the overall title XVI program to advance regional-scale water reclamation and reuse projects?

Answer. In fiscal year 2011, BOR used a Funding Opportunity Announcement (FOA) for the first time in the title XVI program to allocate available appropriations. This year, BOR made significant revisions to the FOA to address feedback and to ensure that the program works, as well as possible and in a way that minimizes the burden on project sponsors. For example, under the revised FOA, sponsors of large projects may request up to $4 million each year as planning, design, and construction activities continue, without being asked to divide those large projects into smaller phases. Again, prior to development of funding opportunities for fiscal year 2013, BOR plans to assess this year's process and will consider additional revisions, if necessary.

ANADROMOUS FISH SCREENS

Question. To date, Federal funding provided through the CVP Restoration Fund's Anadromous Fish Screen Program (AFSP) has contributed to the completion of 29 projects resulting in screening of more than 4,833 cubic feet per second of unscreened diversions. Do you agree that this program has been contributed greatly to the goals of the CVPIA?

Answer. Since CVPIA's enactment in 1992, AFSP has partnered with numerous water districts, the State of California, and other non-Federal entities in the screening of both large and small intake diversions on the Sacramento and San Joaquin Rivers. Through fiscal year 2011, 33 projects screening 5,054 cfs have been completed. The screening of these facilities has certainly reduced the entrainment of endangered fish species (winter-run Chinook salmon, Central Valley steelhead, etc.) and has contributed towards achieving the CVPIA's goals. The AFSP is funding studies and monitoring activities to help quantify fish screening benefits to Anadromous fish.

Question. For fiscal year 2012, BOR received a total of $10,349,000 for AFSP. Can you tell how those funds will be spent?

Answer. The AFSP's budget for fiscal year 2012 is broken down as follows:

—Agency Staff Labor = $1.072 million.

—Studies and Monitoring = $0.765 million.

—Planning (design, environmental compliance, permitting, etc.) = $0.165 million.

—Construction = $8.347 million (available for the construction of the Natomas (Phase 2a), Meridian (Phase 2), and Reclamation District (RD) 2035 fish screen projects, depending on the availability of the non-Federal cost share. To date, no district has provided a non-Federal funding commitment).

Question. Can you provide us with a status report, including funding needs for fiscal years 2012, 2013, 2014, and 2015, for each of the projects currently under construction or planned for construction under AFSP?

Answer. The response for fiscal year 2012 was provided above. For fiscal years 2013, 2014, and 2015, all three projects expect to begin construction, depending on whether or not all funding sources are secured. For the Natomas (Phase 2b and 3), RD 2035, and Meridian (Phase 2) fish screen projects, the approximate Federal share is estimated to be $9 million, $18 million, and $9.5 million, respectively. Con-

struction periods for the Natomas, RD 2035, and Meridian projects are 3 years, 3 years, and 2 years, respectively. All Federal funding requires the district to secure a non-Federal funding match.

In addition to the three fish screen projects mentioned above, another proposed project is the West Stanislaus Irrigation District's (WSID) fish screen project on the San Joaquin River. This project is in the early planning stage; therefore, its construction costs are not well defined at this time. Construction of WSID's project could begin as early as 2015, pending completion of all planning, environmental compliance, design, and permitting activities.

Question. Is BOR committed to providing the 50 percent Federal share of the cost of construction of the fish screen projects for RD 2035, the Meridian Farms Water Company, and the Natomas Mutual Water Company?

Answer. Subject to sufficient Federal appropriations, BOR is committed to providing up to a maximum of 50 percent of these fish screen projects' costs. However, this commitment is dependent on there being a secured non-Federal funding match.

TITLE XVI—WATERSMART

Question. While Tennessee is not a Reclamation State, the work that BOR does in the West has an impact nationwide. While water reclamation and reuse is not currently a concern in Tennessee, it could have an impact in the future, and I am interested in the program that reclamation undertakes. How are the choices made for the projects that are funded under the WaterSMART grant program? *Note:* The question refers to water reclamation and reuse; therefore, these proposed responses focus on title XVI instead of WaterSMART.

Answer. The extent to which each project will reduce demands on existing water supplies by making recycled water available; whether the project will make water available to address a specific local water supply concern and whether recycled water will continue to be available during periods of drought; the extent to which additional funding will bring a project close to completion; the extent to which the project is ready to proceed, including completion of necessary environmental compliance; the extent to which the project will improve water quality or provide water for endangered species; the extent to which the project incorporates renewable energy and addresses energy efficiency; the cost per acre-foot of water expected to be delivered by the project as compared to alternatives; the extent to which the project would help to meet the Federal Government's legal requirements such as providing water for water rights settlements or river restoration; the extent to which a rural or economically disadvantaged community would be served by the project; and the extent to which the project incorporates a watershed perspective, including use of regional planning efforts across geographically dispersed localities and collaboration among multiple entities.

Funding criteria for WaterSMART Water and Energy Efficiency Grant proposals include the following:

—The extent to which the project is expected to result in quantifiable water savings or would otherwise improve water management;
—The reasonableness of costs for the improvements proposed;
—The extent to which the project would increase the use of renewable energy in the management of water or otherwise would result in increased energy efficiency;
—The extent to which the project is expected to benefit endangered species;
—The extent to which the project proposes water marketing elements, such as establishment of a new water market or would contribute water toward an existing market;
—Other contributions to water supply sustainability, including addressing specific local concerns, promoting collaboration among parties, or helping to expedite future on-farm irrigation improvements;
—Project planning and readiness to proceed;
—The applicant's description of performance measures that will be used to quantify actual project benefits; and
—Connection to BOR project activities.

Sponsors of authorized title XVI projects and applicants for WaterSMART Grant funding are asked to apply for funding by responding to a Funding Opportunity Announcement posted for the public. A team of BOR employees applies criteria to the applications received to rank proposals and projects are prioritized accordingly.

Question. What is the maximum amount of the grants made under this program?

Answer. Each of the 53 congressionally authorized projects includes an appropriations ceiling for the project—typically $20 million, although some authorized projects have a smaller or larger ceiling. This year, BOR's Funding Opportunity An-

nouncement informed applicants that no more than $4 million in fiscal year 2012 appropriations would be made available to any particular project, up to the amount remaining under the appropriations ceiling for that project.

Question. Is there any allowance made for providing larger grants to regional projects?

Answer. To allocate the limited funding available under the title XVI program (approximately $19 million in fiscal year 2012 for title XVI funding opportunities) among a number of project sponsors seeking funding, grants in excess of $4 million were not possible this year. Project sponsors may apply for additional funding in fiscal year 2013 as construction on projects continues.

As BOR prepares a funding opportunity for fiscal year 2013, we will evaluate this year's process—including that funding level of $4 million per project—and make revisions if necessary to ensure that the program works as effectively as possible for project sponsors.

INDIAN WATER RIGHTS SETTLEMENTS

Question. We provided about $51 million last year for Indian Water Rights Settlements. Has all of that funding been obligated to the various tribes for which it was specified?

Answer. BOR will obligate the entire $51 million appropriated to BOR in fiscal year 2012 by the end of the year. The following represents the funding status of each of the acts within the Claims Resolution Act.

Navajo Gallup Water Supply Project.—For fiscal year 2012, the enacted amount was $24.5 million of which, $17.7 million has been obligated to date. Through construction contracts and three financial assistance agreements (to provide funding to entities for design and construction portions of the project) we anticipate that all funds will be obligated by the end of fiscal year 2012.

Taos Pueblo Indian Water Rights Settlement Act.—In fiscal year 2012, $4 million of the $51 million enacted was appropriated for the Taos Pueblo Indian Water Rights Settlement Act. This settlement requires $36 million to be deposited into the non-interest bearing Taos Pueblo Water Development Fund in the U.S. Treasury. This funding will be made available after the settlement enforcement date of March 31, 2017, to provide grants to plan, permit, design, engineer, and construct the Mutual Benefits Projects. All appropriated dollars will be deposited into the Taos Pueblo Water Development Fund by the end of the fiscal year.

Aamodt Litigation Settlement Act.—In fiscal year 2012, $9.3 million of the $51 million enacted was appropriated for the Aamodt Litigation Settlement Act. As of May 1, 2012, $302,688 of this funding has been obligated. The majority of the $9.3 million is expected to be obligated by September 30, 2012, for planning and engineering design data collection efforts and a National Environmental Policy Act (NEPA) support services contract for the Pojoaque Basin Regional Water System.

Crow Tribe Rights Settlement Act.—BOR and the Crow Tribe executed a Public Law 93–638 construction contract under section 405 on September 13, 2011. Under this contract, BOR has obligated the entire fiscal year 2012 appropriated amount of $8.2 million.

White Mountain Apache Tribe (WMAT) Water Rights Quantification Act.—In September 2011, the $3.2 million discretionary funding received for the WMAT was obligated. To date, the $4.8 million discretionary funding received in fiscal year 2012 has not been obligated, however, is expected to be fully obligated by the end of the fiscal year.

Question. Some of this Settlement funding was to be used for water systems on the reservations. Can you give us an update on the progress of these water systems?

Answer. The following represents the status of each of the water systems within the Claims Resolution Act.

Navajo Gallup Water Supply Project.—The authorizing legislation identified eight pre-construction activities that were required to be completed prior to commencing construction of the Project. All of those activities have now been completed and the corresponding agreements and contracts have been executed. Pre-construction work, including design, Right of Way acquisition, and environmental and cultural resource compliance activities continue in fiscal year 2012 for reaches that will be constructed in the future. The pre-construction land clearances and designs have also been completed to allow for the initial construction to begin in fiscal year 2012. In addition to the pre-construction activities discussed above, construction is scheduled to begin in several areas of the project in fiscal year 2012.

Taos Pueblo Indian Water Rights Settlement Act.—BOR has requested $4 million to be deposited into the Taos Pueblo Water Development Fund. All of the $20 million in discretionary appropriations authorized by Public Law 111–291 (of which the $4 million is a part) must be appropriated and deposited in the Fund by the settlement enforcement date of March 31, 2017. None of the funds are intended to be used on water systems located on reservation lands. The funds are for the Mutual-Benefit Projects, which are intended to minimize impacts on the Pueblos' water resources by moving non-Indian ground water pumping away from the Pueblos' lands.

A contract has been executed with the Pueblo of Taos for their share of San Juan-Chama Project (SJCP) water. The Taos Agreement should be ready for execution later this year. SJCP contracts have been negotiated with the Town of Taos and El Prado. Appraisal level designs and cost estimates are being prepared for some of the mutual benefits projects. This work has been accomplished with Native American Affairs Program funding.

Aamodt Litigation Settlement Act.—Using fiscal year 2012 appropriations, BOR has developed project management plans, begun engineering design data collection in coordination with the project stakeholders, and has initiated Government-to-Government consultations with the Pueblos of Nambé, Pojoaque, Tesuque, and San Ildefonso. BOR expects to award a contract for NEPA compliance support services in July and anticipates awarding contracts for geotechnical investigations in September.

Crow Tribe Rights Settlement Act.—For the Crow Irrigation Project within the contract initiated under Public Law 93–638, BOR reviewed and provided comments on plans and specifications to the tribe for Lodge Grass #1 and #2 diversion structures, and the tribe prepared final plans and specifications, based on BOR's review. Procurement of materials for these facilities is starting this spring and the tribe plans to construct these facilities in the fall of 2012 after the irrigation season concludes.

White Mountain Apache Tribe (WMAT) Water Rights Quantification Act.—The WMAT is currently in the process of soliciting for and awarding design contracts to complete the design work of the Miner Flat Project to the 30 percent stage to enable completion of an Environmental Impact Statement (EIS). The WMAT is also currently in the process of soliciting and awarding a contract for environmental services for EIS development.

CENTRAL UTAH PROJECT COMPLETION ACT

Question. You have proposed reintegrating the Central Utah Project back into BOR's budget as opposed to it being separate as it has been for the last 20 years. Why is this being proposed for fiscal year 2013?

Answer. This consolidation fits in with broader Administration efforts to implement good Government solutions and consolidate and streamline activities where possible. The Central Utah Project Completion Act (CUPCA) is the only major water project within the Department of the Interior (DOI) not managed by BOR. The proposed consolidation is intended to ensure that all major water projects within DOI receive equal and consistent consideration and treatment.

Question. Will this improve the management of the Central Utah Project?

Answer. The proposed consolidation will leave the management of completing construction of the CUPCA with the Central Utah Water Conservancy District. Oversight and administrative responsibilities will move from the Department's Assistant Secretary for Water and Science to BOR. Consolidation of the CUPCA Office into BOR will enhance local responsiveness and program access to the functions within BOR that currently provide administrative support for implementation.

Question. Are there any cost savings by making this change to the Central Utah Project?

Answer. The consolidation will likely have very little impact on costs. No significant cost savings or increase in costs is anticipated.

Question. What happens to the personnel that are currently responsible for the Central Utah Project, are they shifted to BOR's payroll?

Answer. We anticipate that personnel in the CUPCA Office would be shifted to BOR; however, the details of the consolidation have not been finalized.

Question. Will this change affect the responsibilities of the non-Federal partners on the Central Utah Project?

Answer. The consolidation will not impact the non-Federal partners involved with the completing CUPCA. All non-Federal responsibilities and authority as described in the original CUPCA legislation would remain unchanged.

QUESTIONS SUBMITTED BY SENATOR PATTY MURRAY

ODESSA SUBAREA SPECIAL STUDY

Question. Commissioner Connor, as you know the Odessa Subarea Special Study is nearing the end of a 5½-year effort to develop alternatives to maintain the economy and jobs base of the Columbia Basin region by substituting Columbia Basin Project water supplies for groundwater irrigation. The groundwater aquifer is being rapidly depleted which threatens not only continued agricultural production but domestic and municipal water supplies for the region's cities.

I am concerned that the Study is being conducted using the rigid "Principles & Guidelines" study methodology that often does not take into account real world realities and that BOR applies overly cautious construction contingency margins that are out of line with current construction experience.

Is BOR committed to timely completion of the Study and to playing a significant role in finding solutions to the water supply problem of the Columbia Basin Project area?

Answer. Yes, BOR is committed to the timely completion of the Odessa Subarea Special Study and is in the process of completing the Final Environmental Impact Statement and planning documents by summer 2012.

The Preferred Alternative is being developed in consultation with our Study partners in response to public comment on the Draft Environmental Impact Statement. This alternative will provide a good opportunity for public private partnerships and maximizes the use of the existing Columbia Basin Project infrastructure.

Question. The State of Washington has already invested millions of dollars in the Study and other Columbia Basin Project capital projects. What are BOR's plans for integrating funding for project elements in the Administration's budget request, starting in fiscal year 2014?

Answer. BOR's cost is shared with the State of Washington on this Study as well as other Columbia Basin Project capital projects. Implementation of the project is dependent on completion of environmental compliance which is our focus in the near term.

As stated above, BOR is committed to completion of the Study; however, future budget requests are contingent upon the completion and outcome of the Study.

QUESTIONS SUBMITTED BY SENATOR LAMAR ALEXANDER

HYDROPOWER

Question. Commissioner Connor, given the Bureau of Reclamation's (BOR) ownership of thousands of megawatts of hydropower facilities, and the March 31, 2011, Department of the Interior report on the potential to create clean energy at BOR facilities, what is the Bureau doing on this issue?

Answer. BOR is focusing its efforts on creating new clean energy on two fronts. The first is by updating and improving the efficiencies of its existing hydropower generators and the second is by encouraging development of new hydropower on dams and canals where hydropower is currently unavailable.

BOR currently owns and operates 53 hydroelectric powerplants with an installed capacity of 14,803 megawatts of installed capacity. While BOR has a long history of increasing the capacity and efficiency of its hydrogenerators, this initiative could be expanded. By replacing its older hydrogenerator turbines with more efficient turbines, rewinding generators to increase capacity and optimizing operation of existing generators, clean hydropower generation could be increased by an estimated 2 to 3 percent.

To encourage new non-Federal development on BOR dams and canals, BOR has performed two hydropower resource assessments. The first identified 268 megawatts of additional hydroelectric capacity which could be developed primarily at 191 Reclamation dams. The second assessment identified 104 megawatts of hydroelectric capacity which could be developed on BOR canals and conduits. Together these studies identified 1,565 million megawatt-hours of new renewable energy which is enough to power 130,000 homes.

BOR is also revising its process for development of power at BOR facilities through lease of power privilege which is currently under review. This effort will help make the process clear to developers.

Due to these efforts, there are 20 new non-Federal hydropower plants being developed on BOR facilities.

Question. What would it take for the BOR to modernize and upgrade its facilities to result in more clean-energy production?

Answer. BOR could increase its clean hydropower generation by 2 to 3 percent through hydrogenerator turbine replacements, rewinds and optimization projects. Within BOR, 22 percent of hydroelectric generator windings and 30 percent of our turbines are 40 years old or older and have not been refurbished. Using a risk and condition based approach of prioritizing rehabilitations, BOR continues to work with its Federal power customers to better identify and schedule these opportunities.

Senator FEINSTEIN. Okay. Just so everybody here knows the impact of this, California, I should say, America's largest agriculture State is California.

In 2009 when we had a similar situation, you had 45 percent unemployment. You had farmers in bread lines. It was really a terrible, terrible situation. So what we're trying to do is essentially make certain adjustments that could provide at least a flow of water necessary to have a somewhat positive farming experience without throwing people into unemployment.

It's a huge, huge industry. You've been wonderful, and we appreciate it. Please keep going because 150 to 200 acre-feet isn't going to do it.

CONCLUSION OF HEARINGS

Senator FEINSTEIN. Everybody, I think that completes our hearing. Thank you very much, General, two Secretaries, Mike, thank you very much. The hearing is adjourned.

Ms. DARCY. Thank you, Madam Chair.

Mr. CONNOR. Thank you.

[Whereupon, at 4:30 p.m., Wednesday, March 28, the subcommittee was recessed, to reconvene subject to the call of the Chair.]

ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR FISCAL YEAR 2013

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, DC.

NONDEPARTMENTAL WITNESSES

[CLERK'S NOTE.—The subcommittee was unable to hold hearings on nondepartmental witnesses. The statements and letters of those submitting written testimony are as follows:]

DEPARTMENT OF DEFENSE—CIVIL

DEPARTMENT OF THE ARMY

CORPS OF ENGINEERS—CIVIL

PREPARED STATEMENT OF THE AMERICAN SOCIETY OF CIVIL ENGINEERS

Madam Chair and members of the subcommittee: The American Society of Civil Engineers (ASCE) is pleased to provide this statement for the record on the proposed budgets of the U.S. Army Corps of Engineers (USACE) and the Bureau of Reclamation (BOR) for fiscal year 2013.

U.S. ARMY CORPS OF ENGINEERS

The fiscal year 2013 budget provides $4.7 billion, a decrease of more than 5 percent from the fiscal year 2012 enacted level of $5 billion. The President's budget for fiscal year 2013 is inadequate to meet the needs of an aging waterways infrastructure and must be increased. The Congress must expand funding for fiscal year 2013.

The fiscal year 2013 budget plan released by the House Budget Committee last week would further erode the Nation's ability to rebuild its aging water resources infrastructure by reducing total outlays in fiscal year 2013 by $94 billion.

Under the Budget Control Act of 2011, the Congress has $1.047 trillion in new discretionary budget authority for fiscal year 2013, with $686 billion set aside for security programs (defense, intelligence, and homeland security) and $361 billion for all domestic discretionary spending.

ASCE recommends a minimum appropriation of $5.2 billion for USACE in fiscal year 2013 to account for inflation and to halt the decline in budget authority to ensure safe infrastructure and a sound economy.

The administration proposal for fiscal year 2013 would reduce construction funding from $1.694 billion to $1.471 billion, a reduction of 13 percent. Operations and maintenance funding would be down slightly from $2.412 billion to $2.398 billion. The Mississippi River and Tributaries account would decline from $252 million to $234 million or 7 percent. Investigations—the money used to complete project feasibility studies—would go from $125 million to $102 million, a decline of 18 percent. In all, the Civil Works program budget for fiscal year 2013 would be cut from $5.002 billion in fiscal year 2012 to $4.731 billion in fiscal year 2013, an overall reduction of 5.4 percent.

In 2005, Hurricane Katrina vividly demonstrated the perils of relying upon poorly funded infrastructure to protect lives and property. An ASCE investigation (conducted on behalf of USACE) reported in 2007 that chronic under funding was one of the principal causes of the levee failures after Katrina.

"Because of the congressional budgeting process, the stream of funding for the New Orleans hurricane protection system was irregular at best. If a project was not sufficiently funded, the USACE was often required to delay implementation or to scale back the project.

This push-pull mechanism for the funding of critical life-safety structures such as the New Orleans hurricane protection system is essentially flawed. The process creates a disconnect between those responsible for design and construction decisions and those responsible for managing the purse-strings. Inevitably, the pressure for tradeoffs and low-cost solutions compromised quality, safety, and reliability.

The project-by-project approach—in which projects are built over time based on the availability of funding—resulted in the hurricane protection system being constructed piecemeal with an overall lack of attention to 'system' issues. The project-by-project approach appears to be associated with congressional limitations. The USACE was forced into a 'reductionist's' way of thinking: reduce the problem into one that can be solved within the given authority and budget. Focus only on the primary problem to be solved, inevitably making the issues of risk, redundancy, and resilience a lower priority."

American Society of Civil Engineers, The New Orleans Hurricane Protection System 71–72 (2007).

With this proposed budget, USACE would continue to suffer from under investment in essential infrastructure systems. If allowed to continue, this trend likely will result in ever greater system failures and the consequent expenditure of tens of billions of dollars to rebuild what could have been built more economically in the first instance.

In the face of USACE's aging infrastructure needs, the President's budget for the Civil Works program in fiscal year 2013 reduces Federal investments in vital national civil works systems. Moreover, the negative budgeting trend is not likely to improve in future years. USACE estimates that its budget proposals will continue to decline through fiscal year 2015. USACE expects that inflation will reduce actual spending on key infrastructure programs by a further $3 billion over the next 5 years. ASCE believes that these levels of spending are inadequate to meet the Nation's security, economic, and environmental demands in the 21st century.

THE HARBOR MAINTENANCE TRUST FUND

The Harbor Maintenance Revenue Act authorizes expenditures from the Harbor Maintenance Trust Fund (HMTF) to finance up to 100 percent of eligible USACE harbor operation and maintenance costs, including the operation and maintenance of Great Lakes navigation projects.

The fund fully finances eligible operation and maintenance costs of the Saint Lawrence Seaway Development Corporation. The Water Resources Development Act of 1996 authorizes the fund to pay the Federal share of the costs for the construction of dredged material disposal facilities that are necessary for the operation and maintenance of coastal or inland harbors, the dredging and disposal of contaminated sediments that are in or affect the operation and maintenance of Federal navigation channels, the mitigation of impacts resulting from Federal navigation operation and maintenance activities, and the operation and maintenance of dredged material disposal facilities.

The dredging of the Nation's ports and harbors has suffered from years of under investment in a system that is critical to America's ability to compete in the global marketplace. For fiscal year 2013 the administration has requested $839 million be appropriated from the HMTF—only 50 percent of total estimated revenues. Total revenues are now estimated at $1.659 billion for fiscal year 2013. The busiest U.S. harbors are presently under maintained. USACE estimates that full channel dimensions at the Nation's busiest 59 ports are available less than 35 percent of the time. This situation can increase the cost of shipping as vessels carry less cargo in order to reduce their draft or wait for high tide before transiting a harbor. It could also increase the risk of a ship grounding or collision.

The fiscal year 2013 budget request does not come close to meeting the requirements of the Nation's ports and harbors, which have an annual need for maintenance dredging of between $1.3 and $1.6 billion, according to USACE.

This trend toward reduced investments in our ports and harbors has led to ever greater balances in the HMTF, and the unexpended balance in the Trust Fund is

growing with a bookkeeping balance of more than $8 billion by September 30, 2013, according to the Office of Management and Budget.[1]

As a result, the great majority of our Nation's harbors—including 8 of the top 10 largest ports—are not being maintained to their fully authorized width and depth. Ships carrying U.S. goods must "light-load", thus increasing the costs of the goods and decreasing American competitiveness in the global economy.

This subcommittee should appropriate $1.6 billion from the HMTF in fiscal year 2013.

BUREAU OF RECLAMATION

The fiscal year 2013 budget request for BOR is $994 million. The Water and Related Resources, BOR's principal operating account, is budgeted at $818.6 million, a decrease of 8 percent.

The request includes a total of for water and energy, land, and fish and wildlife resource management and development activities. Funding in these activities provides for planning, construction, water conservation activities, management of BOR lands, including recreation, and actions to address the impacts of BOR projects on fish and wildlife.

The Congress needs to maintain appropriate and vital levels of funding for the BOR's Water and Related Resources account to support construction and rehabilitation of critical western water projects.

Population growth, climate change, drought, under financing and environmental protection needs have tightened water supplies in the West, and made BOR's infrastructure more important than ever for providing essential water supplies to rural and urban communities as well as agriculture economies throughout the West.

While we recognize the urgent need to address the national deficit, we ask for your support for maintaining at least $1 billion in fiscal year 2013 for BOR. In particular, maintaining this level of funding will help address BOR's unfunded project backlog and create beneficial construction jobs throughout the West. Most significantly, the back log for congressionally authorized BOR water projects now stands at several billion dollars.

We strongly encourage you to recognize through the appropriations process that the infrastructure built and maintained by the Bureau and local governments help power the economic productivity—and tax revenue—on which the U.S. Government depends. Job creation, efficient agricultural production, and reliable drinking water supplies are just a few of the benefits of these investments to the national economy.

ASCE recommends an appropriation of $1 billion for BOR in fiscal year 2013.

PREPARED STATEMENT OF THE BOARD OF LEVEE COMMISSIONERS FOR THE YAZOO-MISSISSIPPI DELTA

There are investments, and then there are investments, just as there are priorities, and then there are priorities.

Since its inception, the United States Congress has allocated approximately $14 billion to the Mississippi River and Tributaries (MR&T) project. According to the U.S. Army Corps of Engineers (COE), last year alone, throughout the Great Flood of 2011, the largest this Nation has ever known, the MR&T prevented $110 billion in flood damages to the Nation's heartland.

That's a good investment.

But such Acts of God as was that flood invariably produce consequences for man. More water than any living human being has ever witnessed was contained—in some instances, barely contained—by one of the greatest engineering and construction feats ever, the mainline Mississippi levee system. But that much water inflicts damages; that much water takes a toll.

COE says that it will take approximately $2 billion to repair and strengthen the levee system that just saved the country $110 billion worth of damage. That's a benefit to cost ratio of 54–1. While less than one-half of an emergency allocation did go to the MR&T, not only is that inadequate, it is a dangerous gamble. Surely, we can adequately restore the levees that just saved us.

That should be a high priority.

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[1] We recognize that none of the U.S. Army Corps of Engineers' funding for ports and harbors is appropriated directly from the HMTF. The money is appropriated from the General Fund of the Treasury. The HMTF then reimburses the General Treasury for the actual dollars expended on projects that are eligible to receive funding through the HMTF.

We ask that the Congress provide $375 million in fiscal 2013 funding for the MR&T—so that we might at least begin the process of getting ready for the next great flood that as always is a matter of when, not if.

All of us, of course, are aware of the Congress's self-imposed moratorium on earmarks. And we can certainly understand such from a fiscal responsibility standpoint. But that said, we also think there is a fundamental flaw in that reasoning, a serious misunderstanding inherent in the very definition of the word, "earmark".

When the men and women of this country think of earmarks, they think of pork-laden legislation which specifically benefits large political campaign contributors. They think of unnecessary public works projects that never seem to end or stay within budgets. They think of bridges that lead to nowhere.

And ladies and gentlemen, that is not what we are talking about here today. Flood control is not a boondoggle. Flood control is a necessity for life as we know it within the greater Mississippi Valley. Public dollars for flood control projects are investments in the national infrastructure. Tax dollars for flood control can literally be thought of as premiums for flood insurance—not for flood damage, but for flood prevention.

Beneath the umbrella of the MR&T, of course, are many component projects, and we would be remiss in our obligation to the citizens of our levee district not to point out the injustice related to one of them. The Upper Yazoo Projects (UYP) represents the virtual ideal of what any flood control project should be. It works—where it has been completed, that is—and absolutely no one, including the environmental community, in any way opposes it.

The UYP has provided documented localized flooding relief to thousands at its southern stretches, while thousands more at the projects' northern end still suffer due only to a lack of funding. In last year's event, the town of Sledge and a heavily traveled State highway were under water, while those to the south of the same tributary were dry. And that is simply wrong.

COE says it has the capability to do $16.5 million toward completion of the projects in 2013. Please give them at least some of the funding needed to continue.

As always, we ask that the Congress also provide needed maintenance funding for Mississippi's four flood control reservoirs and also for the Delta Headwater Project which helps alleviate the stress on those structures and our interior steams by slowing runoffs from the hills to our east. COE's capabilities for those needed efforts are attached.

But most critically, we feel, is that the Congress rejects the demonstrably false and potentially disastrous notion that flood control is optional or some luxury that can be discarded when money gets tight. Not only would lives and livelihoods be lost, but the Nation's economy would be wrecked should America's heartland be inundated by floodwaters.

Flood control is literally a pay me now or pay me later proposition. We can pay to prevent the kind of disasters that last year's epic flood very nearly represented, or we can pay much, much more to try to restore that which is left in the wake of such an event.

Thank you very much for allowing us the opportunity to testify on this matter that is so critical to the future of our Nation.

PREPARED STATEMENT OF THE BOARD OF MISSISSIPPI LEVEE COMMISSIONERS

Madam Chair and members of the subcommittee: This statement is prepared by Peter Nimrod, Chief Engineer for the Board of Mississippi Levee Commissioners, Greenville, Mississippi, and submitted on behalf of the Board and the citizens of the Mississippi Levee District. The Board of Mississippi Levee Commissioners is comprised of seven elected commissioners representing the counties of Bolivar, Issaquena, Sharkey, Washington, and parts of Humphreys and Warren counties in the Lower Yazoo Basin in Mississippi. The Board of Mississippi Levee Commissioners is charged with the responsibility of providing protection to the Mississippi Delta from flooding of the Mississippi River and maintaining major drainage outlets for removing the flood waters from the area. These responsibilities are carried out by providing the local sponsor requirements for the congressionally authorized projects in the Mississippi Levee District. The Mississippi Levee Board and the Mississippi Valley Flood Control Association support an appropriation of $375 million for fiscal year 2013 for the Mississippi River and Tributaries (MR&T) project. This is the minimum amount that we consider necessary to allow for an orderly completion of the remaining work in the Valley and to provide for the operation and maintenance, as required, to prevent further deterioration of the completed flood control and navigation work.

It is apparent that the administration loses sight of the fact that the MR&T project provides protection to the Lower Mississippi Valley from waters generated across 41 percent of the continental United States. These waters flow from 31 States and 2 provinces of Canada and must pass through the Lower Mississippi Valley on its way to the Gulf of Mexico. We will remind you that the MR&T project is one of, if not the most cost-effective project ever undertaken by the United States Government. The foresight of the Congress in their authorization of the many features of this project is exemplary.

The many projects that are part of the MR&T project not only provide protection from flooding in the area, but the award of construction contracts throughout the Valley provides assistance to the overall economy of this area. The employment of the local workforce and purchases from local vendors by the contractors help stabilize the economy in one of the most impoverished areas of our country.

In 2011, the MR&T project successfully passed the greatest flood on the Mississippi River. Every feature of the MR&T project including levees, floodways, and reservoirs were utilized. Not one acre of land was flooded that was not designed to flood. Not one life was lost. The MR&T system prevented $108 billion in damages in 2011 alone. All together since 1928, the Congress has invested $13.9 billion in the MR&T project, and it has prevented $478.3 billion in damages. This is a 34:1 benefit to cost ratio. The flow carried by the Mississippi River in 1927 was 66 percent of a Project Design Flood. The flow carried by the Mississippi River in 2011 was 85 percent of a Project Design Flood. There is a larger flood on the horizon. In fact, stages will be 8-foot higher when we have the Project Design Flood than we just experienced in 2011. The MR&T project is only 89-percent complete. The Congress must be proactive and fully fund the MR&T project until it is completed. If not, the MR&T project will not pass the Project Design Flood.

Even though the MR&T project worked, it suffered a lot of damage and many weaknesses were discovered during the 2011 Epic Flood. The Mississippi Levee Board would like to commend the Congress for appropriating $802 million for repairing the MR&T system following the historic 2011 Flood. This money will help reset and rebuild the MR&T system so that we can pass the next major flood event. Money spent on the MR&T project is money well spent that returns much more money in prevented damages.

We are concerned about the "earmark moratorium" that the Congress has adopted. The Congress has essentially given up their right to appropriate money. They have relinquished this right to the Office of Management and Budget (OMB). OMB always provides a budget that undercuts our projects in the MR&T project because they know that the Congress will provide "congressional adds". Unfortunately people think that the "congressional adds" for the MR&T project are "earmarks". "Earmarks" account for less than 1 percent of the entire Federal budget, but it is these "earmarks" that provide money for much needed and essential projects and provide jobs for the economy. The stimulus money spent the past few years created jobs, built projects, and stimulated the economy. This ban on "earmarks" will cause many projects to be stopped and jobs will be lost. The Congress needs to define what an "earmark" is and they need to be able to do "congressional adds" for our projects.

Thanks to the additional funding provided by the Congress over the last several years over and above the administration's budget, work on the Mainline Mississippi River Levee Enlargement Project is continuing. Of the original 69 miles of deficient levees in the Mississippi Levee District, 32 miles of work have been completed and 8.1 miles are currently under contract. We are requesting $58.687 million for construction on the Mainline Mississippi River Levees in the Lower Mississippi Valley Division which will allow the Vicksburg and Memphis districts to keep existing contracts on schedule and award contracts to avoid any future unnecessary delays in completing this vital project.

The President's fiscal year 2013 budget did not include funding for any construction projects within the Yazoo Basin. This action is especially difficult to understand during a time when our Nation needs an economic boost. These are all projects authorized and funded so wisely by the Congress. All of these projects are encompassed in the footprint of the Delta Regional Authority, an area recognized by the Congress as requiring special economic assistance to keep pace with the rest of our great Nation. We can not lose sight of the fact that all of these projects are required to return more than a $1 in benefits for each $1 spent.

The recommended plan for the Yazoo Backwater Project included a pump that will lower the 100-year flood event by 4.5 feet thereby reducing urban and rural structural damages, providing benefits to the remaining agricultural lands, and reducing the frequency and duration of floods. The plan also includes reforestation easements to be purchased on up to 55,600 of existing agricultural land which will provide benefits in every environmental category—wetlands, terrestrial, aquatics,

and waterfowl resources as well as vastly improving water quality. This was a model project that should be the standard for future public works projects in the United States. However on August 31, 2008, the Environmental Protection Agency (EPA) used it's authority under section 404(c) of the Clean Water Act (CWA) to veto the Yazoo Backwater Project even though it is exempt by section 404(r) of the CWA. The Mississippi Levee Board sued EPA in a lawsuit against EPA asking the Federal Court to determine if this project is indeed exempt from an EPA 404(c) veto by the exemption in section 404(r) of the CWA. The Federal court has ruled in favor of EPA. Unfortunately this model project is now completely stopped. If the Yazoo Backwater Project were in place in 2008, 2009, and 2011, the $220 million project would have prevented $257.5 million in damages. The Congress promised flood protection for the Mississippi South Delta back in 1941 when the Eudora Floodway was removed from the MR&T project. Arkansas and Louisiana have both benefitted from this floodway removal while Mississippi continues to be flooded. We urge the Congress to take up this backwater flooding problem again and find a solution for the Mississippi South Delta.

We are requesting $4.575 million for the Yazoo Backwater less Rocky Bayou Project. This money will be used to start the Environmental Impact Statement for the Yazoo Backwater Levee Enlargement Project. This levee is designed to overtop during a project design flood, but it needs to be raised 5.8 feet to get to the required elevation. This backwater levee is supposed to overtop when we are within 2 feet of a Project Design Flood. In 2011 the Mississippi River was 8 feet below a Project Design Flood and the Yazoo Backwater Levee came within 4 inches of overtopping. We need this backwater levee raised immediately.

Work on the Big Sunflower (Upper Steele Bayou) project has proved to be very beneficial. The Steele Bayou Sedimentation Reduction project has installed drop-pipe structures at headcut locations all along Steele Bayou. These control structures stop the movement of sediment into Steele Bayou. Sediment is bad for flood control and water quality. We are requesting $1.7 million to keep this project moving forward.

Work on the Delta Headwaters project has proven effective in reducing sediments to downstream channels. To discontinue this project will only diminish water quality by increasing sediment, reducing the level of flood protection to the citizens of the Delta and increasing required maintenance. We are requesting $13 million to continue this project.

Maintenance of completed works can not be overlooked. The four flood control reservoirs overlooking the Delta have been in place for 50 years and have functioned as designed. Required maintenance must be performed to avoid any possibility of failure during a flood event. We are asking for $7.7 million for Arkabutla Lake, $7.245 million for Enid Lake, $7.346 million for Grenada Lake, and $11.397 million for Sardis Lake.

We are requesting $12.754 million for Maintenance of the Mainline Mississippi River Levees in the Lower Mississippi Valley Division which will provide for repair of levee slides, slope repair, and repair of the gravel maintenance roadway which is so vital to access during high water.

The Mississippi River and our Ports and Harbors need money for maintenance dredging. The Mississippi River carries tons of sediment every second. This sediment falls out in slack water areas such as entrances to our ports and harbors. The Greenville Port needs $1 million and the Vicksburg Port needs $750,000 to perform annual maintenance dredging. This dredging is vital to keep these ports open during the low-water season when much of the farm harvest is ready to be transported.

We are requesting $2.58 million for the Lower Mississippi Valley Division for Collection of Basic Data under General Investigations. This money is used to monitor and collect water-quality samples at gaging stations located throughout the Mississippi Delta. With the emphasis on water quality, water quantity, and total maximum daily loads (TMDLs), we must be able to continue to collect good data on water quality so we can get a baseline established to be able to monitor and improve water quality in the Mississippi Delta. Improvements in water quality in the Mississippi Delta will translate into improved water quality in the Gulf of Mexico and help the Gulf Hypoxia issue.

EPA has been given too much power under section 404(c) of CWA which allows EPA to veto congressionally authorized projects. During the early 1990s, due to abuse of the 404(c) power by EPA, the Congress considered removing this authority from EPA. EPA has again invoked this veto power on the Yazoo Backwater Project. EPA is saying that you can't lower the water level with a flood control project. By killing this project with 404(c) veto authority, EPA is drawing a line in the sand over the future of flood control in our great Nation. EPA has vetoed the Yazoo Backwater Project even though it was approved, authorized, and funded by the Congress

and exempt from a 404(c) veto by 404(r). It is now time to again take up this issue and remove the 404(c) veto power from EPA before they kill another flood control project that has been authorized by the Congress.

The Council of Environmental Quality (CEQ) draft proposal of changes to the Principals and Guidelines (P&G) for Federal agencies fails to establish a clear, concise, and workable framework to guide development of water resources projects. It elevates environment considerations over economic benefits, social well-being, and public safety. Because of these critical and extensive failings, we recommend that this effort be put aside and restarted from the beginning.

As Members of the Congress representing the citizens of our Nation who live with the Mississippi River everyday, you clearly understand both the benefits provided by this resource and the destructive force that must be controlled during a flood. On behalf of the Mississippi Levee Board, I can not express enough our appreciation for your efforts in providing adequate funding over the last several years that has allowed construction to continue on our much needed projects and thank you in advance for your kind consideration of our requests for fiscal year 2013.

PREPARED STATEMENT OF THE FIFTH LOUISIANA LEVEE DISTRICT

The Board of Commissioners for the Fifth Louisiana Levee District respectfully requests that construction funding for Mississippi River levees be increased from the $45,187,000 contained in the proposed budget for fiscal year 2013, to the U.S. Army Corp of Engineers' (COE) capability of $58,687,000.

Reduced funding, combined with the inability to let construction contracts under a continuing contract clause, has left thousands of people in Louisiana vulnerable to the adverse effects of a deficient levee system. Construction of levee enlargements is essential if the levee is to contain the "Project Flood" which is estimated to be 20 percent greater than the record Flood of 1927.

The effect of fully funded contracts for levee construction, now required under Public Law 109–103, (sections 106 and 108), adopted by the 109th Congress in 2005, as opposed to the previous system of continuing contract clauses, has virtually halted enlargement of the Mississippi River levee system in Louisiana. Year after year, as the cost of projects and maintenance has increased, funding for levee systems and flood control has been reduced. The current proposed budget is no exception, with only $234 million allocated for the entire Mississippi River and Tributaries (MR&T) project. We request that be increased to COE's capabilities of $375 million.

Since the MR&T project was established, $13 billion has been invested and more than 475 billion of flood damages have been prevented. This investment provides benefits far beyond their actual cost to the taxpayer by offering protection to more than 4 million citizens and allows people to live and work throughout a 35,000 square mile area in seven States.

With the help of the Congress, great progress has been made in the Mississippi River Valley over the years, but there is still much to be done, and because of that, we urge the Congress to increase funding to COE in fiscal year 2013, to insure that COE is not forced to halt or delay contracts for levee construction essential to the well-being of this Nation. It is vital that the MR&T project(s) be completed at the earliest possible date.

PREPARED STATEMENT OF THE IZAAK WALTON LEAGUE OF AMERICA

I am Scott Kovarovics and the Conservation Director of the Izaak Walton League of America. The Izaak Walton League of America appreciates the opportunity to submit testimony concerning appropriations for fiscal year 2013 for programs under the jurisdiction of the subcommittee. The League is a national, nonprofit organization founded in 1922 with more than 39,000 members and 250 local chapters nationwide. Our members are committed to advancing common sense policies that safeguard wildlife and habitat, support community-based conservation, and address pressing environmental issues. The following pertains to programs administered by the U.S. Army Corps of Engineers (COE).

CORPS OF ENGINEERS, OPERATIONS AND MAINTENANCE, MISSOURI RIVER

The League joins other groups in urging the subcommittee to appropriate $90 million in fiscal year 2013, as requested by the President, for the Missouri River Recovery Program. With this funding, COE, U.S. Fish and Wildlife Service (FWS), States, and other partners can continue important ecosystem restoration efforts that are producing long-term ecological and economic benefits.

The Missouri River basin encompasses land in 10 States covering one-sixth of the continental United States. The Missouri is one of the most altered ecosystems on Earth. Although recovery and restoration efforts are on-going, they need to continue and expand.

COE, FWS, and many State agencies have been restoring habitat for fish and wildlife along the river. This work is critical for the Interior Least Tern and Pallid Sturgeon, listed as endangered, and the Piping Plover, listed as threatened, under the Endangered Species Act. The restoration efforts also benefit many other species of fish and wildlife throughout the region. These habitat restoration projects are working with the river—not against it.

These projects also generate additional economic activity in communities along the river. Anglers, hunters, boaters, birdwatchers, and others have been using these areas proving the old adage "if you build it, they will come." The Missouri Department of Conservation and the Nebraska Game and Parks Commission found recreational spending provides $68 million in annual economic impact to communities along the Missouri River from Yankton, South Dakota to St. Louis, Missouri. A South Dakota Game, Fish, and Parks study shows that recreational benefits from angling on the Missouri River account for more than $107 million in annual economic activity in the Dakotas and Montana. These projects are bringing more people to the river throughout the Missouri basin.

In addition to the economic boost from tourism, restoration projects support job creation throughout the entire region. COE contracts with local construction companies, creating jobs, and injecting dollars into local economies through purchases of materials, fuel, food, and lodging. With the funding requested, COE could readily implement more of these important economic and river restoration projects.

Missouri River Ecosystem Restoration Plan.—The League urges the subcommittee not to include any provision in its fiscal year 2013 bill limiting funding for the Missouri River Ecosystem Restoration Plan (MRERP). This long-term ecosystem study will lead to a comprehensive plan that Federal agencies, States, tribes, and communities along the river will be able to implement for a healthier Missouri River. A great deal of time and effort has already gone into development of MRERP. Funding must be allowed for this important effort to get back on track before the information already gathered loses relevance and will cost U.S. taxpayers more to gather again.

Missouri River Authorized Purposes Study.—The League urges the subcommittee to provide funds to complete the Missouri River Authorized Purposes Study (MRAPS). The League strongly opposes the funding prohibition contained in the Consolidated Appropriations Act of 2012. It does not provide taxpayers with meaningful savings in the near-term and jeopardizes real-future savings. Delaying this analysis deprives the country of Missouri River management geared toward future needs rather than those identified during World War II.

MRAPS for the first time will review the eight authorized Missouri River purposes established by the Flood Control Act of 1944. This thorough analysis of the purposes will determine the best management for the American taxpayer, all the residents of the basin, and fish and wildlife, taking in account today's economic values and priorities, rather than those imagined nearly 70 years ago.

Full funding of MRAPS is a wise investment. A comprehensive review and accompanying changes will streamline future COE operational expenses saving tax dollars and bringing Missouri River management into the 21st century. MRAPS needs to be re-started in fiscal year 2013.

CORPS OF ENGINEERS, OPERATIONS AND MAINTENANCE, UPPER MISSISSIPPI RIVER

The League is an active and long-time proponent of restoring the Upper Mississippi River (UMR) ecosystem. We have supported the Upper Mississippi River Restoration (UMRR) program (also known as the Environmental Management Program) since its inception and continue to support this vital restoration initiative. We urge the subcommittee to provide $33.2 million for UMRR in fiscal year 2013 as authorized by the Water Resources Development Act (WRDA). Although we are encouraged by the President's request for fiscal year 2013, pressing restoration needs on-the-ground require the full amount authorized for UMRR.

The League has also strongly expressed its opinion that the large-scale navigation modifications included in the Recommended Plan for the Upper Mississippi Navigation and Ecosystem Sustainability Program (NESP), as authorized by the Water Resources Development Act of 2007, have not been justified by COE and should not be pursued. Previous reviews by the National Academy of Sciences and the Assistant Secretary of the Army, Civil Works found that the navigation construction component of NESP was not economically justifiable. A report released in 2010 by the Nicollet Island Coalition, of which the League is a member, provides additional evi-

dence that proposed locks and dams in this region are not a good investment for American taxpayers. With this in mind, the League supports the administration's decision not to request funding for NESP in fiscal year 2013.

While the lock and dam expansion authorized by NESP is not a good investment, the League recognizes the need for the Congress to invest in inland navigation to maintain the transportation infrastructure on the rivers. The Inland Waterways Trust Fund (IWTF) provides 50-percent cost-share for construction and rehabilitation on navigation infrastructure. The League agrees with the administration that the IWTF needs to be reformed because not enough revenue is generated by the $0.20 per gallon fuel tax on navigation to fund the multibillion dollar backlog of projects. The League supports the President's proposal to implement a user fee at the locks, while maintaining the 50-percent cost-share model on all inland waterway construction and navigation projects. The League strongly opposes including any provision in the subcommittee's fiscal year 2013 bill that increases the cost-share portion from the taxpayer funded general appropriation, as proposed by the Inland Marine Transportation System Capital Investment Strategy Team. Such a proposal will increase the national deficit and allow environmentally damaging and economically questionable projects to move forward.

The UMR is one of the most complex ecosystems on Earth. It provides habitat for 50 species of mammals, 45 species of reptiles and amphibians, 37 species of mussels, and 241 species of fish. The need for ecosystem restoration is unquestionable. As COE correctly stated in its study of navigation expansion, this ecosystem is "significantly altered, is currently degraded, and is expected to get worse." Researchers from the National Academy of Sciences have determined that river habitat is disappearing faster than it can be replaced through existing programs such as UMRR, which was authorized at $33.2 million annually by the Congress in 1999, but has never received full appropriations. As habitat vanishes, scientists warn that many species will decline and some will disappear.

Our Nation relies on a healthy Mississippi River for commerce, recreation, drinking water, food, and power. More than 12 million people annually recreate on and along the UMR spending $1.2 billion and supporting 18,000 jobs. More people recreate on the Upper Mississippi than visit Yellowstone National Park while barge traffic has remained static on the river for more than 2 decades.

In assembling the UMR–IWW navigation study, COE recognized the critical need for ecosystem restoration and encouraged the Congress to invest approximately $130 million annually in UMR habitat restoration efforts. With this need in mind, the League strongly encourages the subcommittee to prioritize investment in ecosystem restoration by appropriating $33.2 million for the UMRR in fiscal year 2013. Additional funding for restoration will support economic development and job creation in communities along the UMR and provide long-term conservation and economic benefits for the region and the Nation.

CLEAN WATER ACT GUIDANCE AND RULEMAKING

This year, the American people will be celebrating the 40th anniversary of passage of the Clean Water Act. With this in mind, the League strongly urges the subcommittee not to include or accept any provision in its fiscal year 2013 bill barring COE from finalizing and implementing Clean Water Act guidance or proceeding with the formal rulemaking process to revise its clean water regulations. We appreciate the subcommittee's leadership last year on this critical issue.

Since proposing draft guidance last spring, COE has conducted a nearly unprecedented public engagement process for agency guidance. During this process, COE and the Environmental Protection Agency (EPA) held a 90-day public comment period. The agencies received nearly 230,000 comments and have publicly described the overwhelming majority as supporting the proposal. In mid-February 2012, COE and EPA submitted revised guidance to the Office of Management and Budget (OMB) for another round of inter-agency review. This process also allows nongovernmental organizations to meet with OMB to share their perspectives on the policy.

Guidance proposed by COE is based on sound science and clearly complies with the Supreme Court decisions in SWANCC and Rapanos. Allowing COE to proceed with guidance will partially restore protections for streams flowing to public drinking water supplies for 117 million Americans. It will also begin—but only begin—to restore protections for some wetlands. Healthy wetlands are essential to waterfowl, fish, and other wildlife, provide cost-effective flood protection, and improve water quality. They also support hunting, angling, and wildlife watching, which together inject $122 billion annually into our economy. Finalizing the guidance will also provide more clarity and certainty about Clean Water Act implementation to landowners, developers, agency personnel, and State and local governments.

Once again, we urge the subcommittee not to include or accept any provision in its fiscal year 2013 bill limiting COE's ability to finalize and implement Clean Water Act guidance or initiate formal rulemaking concerning clean water regulations.

We appreciate the opportunity to submit this testimony.

PREPARED STATEMENT OF THE LITTLE RIVER DRAINAGE DISTRICT

My name is Sam M. Hunter, DVM. I am a veterinarian, landowner, and farmer, and I reside in Sikeston, in southeast Missouri.

I am the president of the Board of Supervisors of The Little River Drainage District, the largest such entity in the Nation. Our district serves as a drainage outlet and provides flood control to parts of seven counties in southeast Missouri. We also provide flood protection to a sizable portion of northeast Arkansas. Our district is funded solely by the annual assessment of benefits of more than 3,500 landowners.

My remarks will address the Mississippi River and Tributaries (MR&T) project and specifically the St. Francis River Basin line item of the MR&T. These funds are investments yielding a return of substantial benefit to the Nation. They provide funding for flood control that protects numerous cities, farms, and industries. Funding through the MR&T also provides needed repairs and upgrades to locks and dams, modernization of hydroelectric plants, and environmental restoration. This project was authorized by the Congress in 1928 and remains incomplete, yet yields a return of $34 in damage reduction for every $1 spent. I know of no better investment of taxpayer dollars.

We fully understand the financial constraints on our Government and the need to do more with less in order to reduce the national debt, balance the budget, and create jobs. Programs and projects have been eliminated or downsized; however, the MR&T is so critical to the Nation that it cannot withstand deep cuts without jeopardizing the safety of our citizens and our economy. The Mississippi River flood of 2011 would have been catastrophic without the MR&T. It is estimated that more than $112 billion in flood damages were prevented by the project. The system did suffer damage as a result of the flooding and the Congress did respond to that and appropriated additional emergency funds to restore and repair the system, and for that we are grateful. But the work to maintain and complete the project must continue.

In the fiscal year 2013 budget submitted by the President the MR&T appropriation was $210 million. That amount is identical to the fiscal year 2012 request. It appears that the Office of Management and Budget (OMB) has again chosen to ignore the infrastructure needs of the Mississippi Valley. That amount will possibly keep the lights on, but does not allow for much needed maintenance. To allow the project to crumble away is inexcusable. The navigation element alone, which includes the necessary maintenance of locks, dams, and harbors, is vital to this Nation's economy. Moving products on the Mississippi River is the most economical and environmentally friendly method of transportation. It is dramatically more fuel efficient than truck or rail. It allows our commodity producers to compete in a global market. Continued underfunding of the MR&T is a dangerous course of action. The failure of just one lock and/or dam could have an impact on the entire Nation's economy, yet this fact appears to have been left to chance by OMB.

Fortunately the power of the purse remains with the Congress. Even with an earmark moratorium, the Congress still retains the power to increase the President's budget request, as it has done annually since the administration of President Jimmy Carter. We believe that a minimum of $375 million is necessary to continue to keep the MR&T viable. The Corps of Engineers' (COE) stated capability for the MR&T is $375 million due to the supplemental appropriations for flood repairs.

Within the MR&T budget request is a line item for the St. Francis River and Tributaries that directly impacts our District. The President's budget request for fiscal year 2013 is slightly more than $5.9 million for maintenance, but COE's stated capabilities for the St. Francis Basin is $18.4 million. We maintain that a minimum of $15 million is necessary for maintenance of the St. Francis Basin. This is not for new project construction but for maintenance at a minimum level of functionality.

I can tell you that the 2012 Disaster Relief Act will assist our District by funding the cleanout of our floodway ditches, for which COE is responsible, at a cost of $7.9 million, and the Diversion Channel Stabilization at a cost of $3.5 million. We appreciate this help in recovering from the infamous Flood of 2011.

Another program providing help for flood recovery is the Emergency Watershed Protection Program which is administered through the Natural Resource Conservation Service of the U.S. Department of Agriculture. This program is designed to as-

sist districts such as ours restore drainage facilities that are non-Federal through a local cost share agreement, of which we provide 25 percent. Past experience with this program has been impressive. It allows local control of the project, offers quick approval of projects, and addresses our needs immediately. This year's program is laid out on a very short-completion deadline for the extraordinary amount of recovery work that needs to be done. We intend to request that the completion dates be extended past the current deadline of end of fiscal year 2012 and ask this committee to join in that request.

In closing, I would like to thank each member of the subcommittee, their staff, and the Committee staff for taking the time to review the above-written testimony. We are appreciative of anything the Energy and Water Development Subcommittee can do to improve our environment and our livelihoods, and to ensure the safety of our communities. Your work is very important to our country and we feel it is important for us to thank you for your service, and for giving us the opportunity to share our viewpoints.

PREPARED STATEMENT OF THE MISSISSIPPI VALLEY FLOOD CONTROL ASSOCIATION

The Mississippi Valley Flood Control Association respectfully requests that the sum of $375,000,000 be appropriated in fiscal year 2013 for the Mississippi River and Tributaries (MR&T) project.

The Flood Control Association was first organized in 1922 by a group of interested citizens from the States of Arkansas, Mississippi, and Louisiana. From that first meeting, held in Memphis, Tennessee, a delegation was selected to come to Washington in an attempt to convince both the Congress and the executive branch that the prevention of catastrophic floods in the lower Mississippi River Valley was beyond the capabilities of the local people and was in fact too large for any group other than the Federal Government. This group of dedicated citizens was without success until the record flood of 1927 swept through the Mississippi River Valley with the fury of devastation not seen before. An unknown number of people perished along with thousands of head of livestock and large numbers of many species of wildlife. Some 7 percent of all the productive land on this planet was under water for a period of almost one-half a year. The Congress, after extensive hearings, passed the Flood Control Act of May 15, 1928, that was signed into law by then President Calvin Coolidge.

The Flood Control Association then disbanded, acting under the erroneous assumption that the United States Government would provide whatever was needed to prevent flooding in the valley. In 1935, it became apparent that additional legislation was required and the Association, under the leadership of Senator John Overton from Louisiana, was re-organized. It has been in continuous and active existence since for some 77 years.

We have been fortunate since 1935 to have as our president and two vice presidents Members of the United States Congress with Senator Roger Wicker from the State of Mississippi serving as our president, Congressman Blaine Luetkemeyer from Missouri and Congressman Rodney Alexander from Louisiana serving as our vice presidents.

We are a nonprofit agency made up of levee boards, drainage districts, harbor and port commissions, States, cities, and towns, including many other agencies and individuals that have an interest in the protection and betterment of the people and property in the Mississippi River Watershed, the third largest in the world. But we feel it is the greatest, because of its size coupled with its essential usefulness to the Nation. In a few words we are an agency through which the local people may speak and act jointly on all flood control, bank stabilization, navigation, and major drainage problems.

Never before have we seen our Nation faced with such huge public debts and budget deficits as we do today. In our daily life we are made aware of the gut-wrenching sadness of seeing homes foreclosed and jobs disappear. We know all those things, but we also know that the country that is and has been for generations the bright light of freedom and prosperity, must not and cannot let its infrastructure deteriorate and fall into ruin; neither can we allow one of our vital forms of transportation become underutilized or useless due to the lack of proper and necessary maintenance.

Unfortunately, today as usual you are considering a budget request from the executive department that has insufficient funding to prevent either of the cases just outlined. The only recourse we have is to request the Congress do, as you have always done, add the necessary supplemental funds to protect the lives, property, and livelihoods of the citizens of the river basin.

Earlier in this statement, it was said that the Mississippi River Watershed that provides drainage for 41 percent of the Nation, moves almost 1 billion tons of commodities—60 percent of our grain, 25 percent of our petroleum products, 20 percent of the coal to fire our power plants—was the greatest watershed on the planet because of size coupled with its usefulness. Useful because the river has been controlled and improved beginning with the first levee for flood protection built in New Orleans, Louisiana in 1717. Levees came early because "without flood control, nothing else matters". Over the years, the Congress, the Corps of Engineers (COE), and the local people have worked together to make the Mississippi River Watershed, stretching from New York on the east to Montana on the west and from the Canadian border to the Gulf of Mexico, the greatest and the envy of the developed world.

Our great country has always been a maritime Nation, almost totally dependent during the earliest years on the oceans and unimproved waterways to move our commerce including, at that time in history, our people. Westward expansion used the rivers whenever possible and many of the earliest construction projects in the new country were the building of canals connecting commercial waterways. Our national security and economic well-being has always, now more than ever, depended on the seas, lakes, and inland waterways that give us accessibility to every corner of our great Nation.

All improvements, great or small, sooner or later, require maintenance. We have been too lax in this great country with maintaining and improving our basic forms of transportation. We have not built new airports to keep up with the demand of a growing population nor have we improved and properly maintained those that we have. Our system of railroads is in such bad shape that we no longer even attempt to move human cargo by train except for a very few small, densely populated areas of the country. The interstate highway system that we constructed more than 50 years ago was a great source of pride, but we failed again to properly maintain it. Now we are paying a tremendous price to keep it functioning. A great majority of our waterway improvements, including our locks and dams and our flood control facilities, are well past their design life. Soon we will find ourselves in emergency mode of repairing and replacing failures. This will be very expensive, an economic disaster. Farmers will be especially hard hit with no efficient and economical way to transport their crops to the international market.

Our principal, but certainly not our only concern, is with the funding of the MR&T project. This is a very unique project that was conceived and developed with consideration for the functional relation between all its parts and the whole. It is a project that covers all the aspects of development in the Mississippi River Valley below the vicinity of Cape Girardeau, Missouri, from flood control to navigation to environmental protection and enhancement. The MR&T project is well-planned, well-organized, well-engineered, well-constructed and until recently, well-maintained. Unfortunately, it is not yet completed and adequate funding from the Congress is imperative if it is to be completed and properly maintained. If, because of inadequate funding and uncalled for delays due to countless and repetitive studies and misguided lawsuits by the misnamed and misled environmentalists, the lower reaches of the Mississippi River are not usable by commercial boats and barges and sea-going ships, then no amount of improvement on the upper reaches of the Mississippi River can have any favorable effect. "Without flood control nothing else matters."

One of the major opportunities that we have to increase the wealth of our Nation is to continue the improvement and development of our major river systems. As noted the major system is the Mississippi River Watershed. For that reason, we request that the Congress do what it has done since 1928. That is, to appropriate sufficient supplemental funds, allowing COE to continue what the Congress has directed them to do. We are not talking about "earmarks" or pork barrel politics. We are talking about funds to keep our navigation channels open and to provide necessary dredging in order that our smaller but no less critical ports may continue to function; funds to continue the on-going work to bring some miles of levee sections that are deficient in either grade or section up to the design required to protect our citizens against the "greatest possible flood"; funds to bring our bank stabilization program to completion in the most efficient manner, both economically and environmentally.

The Executive Committee of the Mississippi Valley Flood Control Association has carefully examined the President's budget request for fiscal year 2013. We have arrived at the unanimous conclusion that the required appropriation for the MR&T project is $375 million, just to be reasonably assured that the goals of navigation, flood control, levee improvement and bank stabilization are met; nothing more, nothing less.

In a special message to the Congress on flood control in the Mississippi Basin, dated July 16, 1947, President Harry S Truman began with the following in his opening sentence: "the major opportunity of our generation to increase the wealth of the nation lies in the development of our great river systems". Later on in his message President Truman used these words: "we must never forget that the conservation of our natural resources and their wise use are essential to our very existence as a nation. The choice is ours. We can sit idly by, or almost as bad, resort to the false economy of feeble and inadequate measures, while these precious assets waste away. On the other hand, we can, if we act in time put into effect a realistic and practical plan which will preserve these basic essentials of our national economy and make this a better and a richer land". Mr. Truman was speaking about the MR&T project in this last quote. These words are still true today. On July 31, 1947, President Truman approved appropriations bills, including supplemental provisions for flood control on the MR&T project in fiscal year 1948 of $250 million. And that was in 1948 dollars.

We have attached a breakdown of the requested funds of $375 million for the Mississippi River and Tributaries Project for fiscal year 2013.

MISSISSIPPI VALLEY FLOOD CONTROL ASSOCIATION
FISCAL YEAR 2013 CIVIL WORKS REQUESTED BUDGET
MISSISSIPPI RIVER AND TRIBUTARIES APPROPRIATIONS

[In thousands of dollars]

Project/Study	
Fiscal year 2013 request	375,000
MISSISSIPPI RIVER AND TRIBUTARIES INVESTIGATIONS	
Collection and study of basic data	500
Memphis Metro Storm Water Management, Tennessee (FEAS)	100
Total investigations	600
MISSISSIPPI RIVER AND TRIBUTARIES CONSTRUCTION	
Atchafalaya Basin, Louisiana	9,000
Atchafalaya Basin Floodway System, Louisiana	4,000
Channel Improvement, Arkansas, Illinois, Kentucky, Louisiana, Mississippi, Missouri, and Tennessee	71,000
Mississippi River Levees, Arkansas, Illinois, Kentucky, Louisiana, Mississippi, Missouri, and Tennessee	69,490
Yazoo Basin, Upper Yazoo Projects	5,000
Total construction	158,490
MISSISSIPPI RIVER AND TRIBUTARIES MAINTENANCE	
Atchafalaya Basin, Louisiana	12,865
Atchafalaya Basin Floodway System, Louisiana	2,295
Baton Rouge Harbor, Devils Swamp, Louisiana	80
Bayou Cocodrie and Tributaries, Louisiana	50
Bonnet Carre, Louisiana	55,029
Channel improvement, Arkansas, Illinois, Kentucky, Louisiana, Mississippi, Missouri, and Tennessee—TOT	62,615
Channel improvement—dredging	18,785
Channel improvement—revetments and dikes	43,830
Greenville Harbor, Mississippi	30
Helena Harbor, Arkansas	210
Inspection of completed works	1,918
Lower Arkansas River, North Bank, Arkansas	375
Lower Arkansas River, South Bank, Arkansas	255
Lower Red River—South Bank Levees	565
Mapping	1,063
Memphis Harbor McKellar Lake, Tennessee	1,935
Mississippi Delta Region—Caernarvon, Louisiana	625
Mississippi River Levees, Arkansas, Illinois, Kentucky, Louisiana, Mississippi, Missouri, and Tennessee	8,645
Old River Control Structure, Louisiana	10,625
St. Francis River and Tributaries, Arkansas and Missouri	7,800
Tensas Basin, Boeuf and Tensas Rivers, Arkansas and Louisiana	2,450
Tensas Basin, Red River Backwater, Louisiana	3,185
Vicksburg Harbor, Mississippi	55
Wappapello Lake, Missouri	5,360

MISSISSIPPI VALLEY FLOOD CONTROL ASSOCIATION—Continued
FISCAL YEAR 2013 CIVIL WORKS REQUESTED BUDGET
MISSISSIPPI RIVER AND TRIBUTARIES APPROPRIATIONS

[In thousands of dollars]

Project/Study	
White River Backwater, Arkansas	1,510
Yazoo Basin, Arkabutla Lake, Mississippi	7,200
Yazoo Basin, Big Sunflower (Bogue Phalia), Mississippi	300
Yazoo Basin, Enid Lake, Mississippi	6,795
Yazoo Basin, Greenwood, Mississippi	1,000
Yazoo Basin, Grenada Lake, Mississippi	7,200
Yazoo Basin, Main Stem, Missouri	2,275
Yazoo Basin, Sardis Lake, Mississippi	8,500
Yazoo Basin, Tributaries, Mississippi	1,000
Yazoo Basin, Will M. Whittington Auxiliary Channel, Mississippi	575
Yazoo Basin, Yazoo Backwater, Mississippi	700
Yazoo Basin, Yazoo City, Mississippi	1,000
Total maintenance	215,910
Total Mississippi River and Tributaries	375,000

PREPARED STATEMENT OF THE NATURE CONSERVANCY

Madam Chair and members of the subcommittee: My name is Robert Bendick and I am the Director of U.S. Government Relations. Thank you for the opportunity to present The Nature Conservancy's testimony on the fiscal year 2013 appropriations for the U.S. Army Corps of Engineers (COE) and Bureau of Reclamation. The Nature Conservancy is dedicated to saving the lands and waters on which all life depends. Our on-the-ground conservation work is carried out in all 50 States and more than 30 foreign countries and is supported by approximately 1 million members.

We recognize the challenges of working in a constrained fiscal environment. But we also recognize the critical importance of our water resources and the benefits these resources provide to virtually every sector of the economy, the quality of life in our communities, and the health of our people. Our focus is on supporting the programs and investments needed to ensure these benefits are enhanced today and made sustainable for tomorrow.

The Nature Conservancy supports building sustainability into the management of our Nation's water infrastructure, including the ecosystem restoration projects essential to ensuring that sustainability. These ecosystem restoration projects pay dividends through natural flood control, higher quality water, sustaining commercial fisheries, and supporting recreation and tourism. With impacts stretching out for decades to come, the projects and proposals that follow reap high returns on investment.

SUSTAINABLE RIVERS PROJECT

The Sustainable Rivers Project (SRP) is an initiative launched by COE in partnership with the Conservancy to update decades-old water management practices to meet society's needs today and in the coming decades. By managing dams in coordination with downstream flood-prone lands, the SRP is developing and demonstrating innovative approaches to maintain and enhance water supply, flood protection, hydropower generation, and recreation while restoring critical ecosystems and the economically valuable services they provide.

This approach was recently studied by COE, The Nature Conservancy, and University of California—Davis in two river basins—Georgia's and South Carolina's Savannah and California's Mokelumne. The Savannah River study found that small changes in floodplain management enable the use of up to 50 percent of the existing flood storage capacity for hydropower and recreation, producing a net benefit of more than $12 million per year, without increasing flood risk and with additional benefits for water supply and the environment. The Mokelumne River study found similarly modest shifts in floodplain management frees up 25 percent to 50 percent of flood storage for public water supply—enough additional water for nearly 450,000 people—while maintaining flood protection and increasing hydropower generation and improving habitat for declining salmon. COE's budget includes three specific

initiatives that support SRP efforts; the Conservancy supports all three at the levels provided by COE:

Reducing Civil Works Vulnerability.—The Conservancy supports $8 million.

Response to Climate Change.—The Conservancy supports $5 million.

National Portfolio Assessment for Reallocations.—The Conservancy supports $571,000.

U.S. ARMY CORPS OF ENGINEERS CONSTRUCTION PRIORITIES

Hamilton City Flood Damage Reduction and Ecosystem Restoration.—The fact that COE again selected Hamilton City for its construction budget in fiscal year 2013 is a testament to the innovative dual nature of the project: increasing flood protection for Hamilton City while restoring approximately 1,500 acres of riparian habitat. Appropriations for the first phase will initiate construction of approximately 2 miles of levee, removal of one-half of the existing levee, and completion of roughly one-third of the habitat restoration. The Conservancy strongly supports the $7.5 million proposed in fiscal year 2013 to complete the first phase of construction.

Chesapeake Bay Oyster Recovery.—This project will build on recent progress and continue to increase the scale of oyster restoration in the Chesapeake Bay. Scientists in Maryland have estimated that oysters in just one Chesapeake tributary—the Choptank River—remove pollution that would otherwise cost waste water treatment systems $300,000/year to remove. The $5 million proposed for the fiscal year 2013 budget and supported by the Conservancy will allow COE to conduct additional habitat restoration in the Choptank River, as well as new restoration/enhancement work in the Great Wicomico, Lynnhaven and Piankatank Rivers in Virginia.

South Florida Ecosystem Restoration Program.—In recent years, the Federal Government has made substantial progress on Everglades projects, and we encourage continued funding for the three authorized Comprehensive Everglades Restoration Plan (CERP) projects. We also support inclusion of language to allow COE to carry over credit between studies and projects for which cost-share agreements have been executed with the South Florida Water Management District; such language would enable COE to more efficiently manage projects like the Kissimmee River Restoration Project (KRRP), a high priority for the restoration of the Everglades. The project is currently projected to be complete by 2015. The Conservancy supports the $153,324,000 proposed for the South Florida Ecosystem Restoration Program in fiscal year 2013.

Upper Mississippi River Environmental Management Program.—Authorized in 1986, this program supports coordinated habitat rehabilitation and enhancement projects in the Upper Mississippi River system. Over the 25 years of the program, COE has completed more than 54 projects, benefiting more than 100,000 acres of aquatic and floodplain habitat. Currently, 35 projects in the program are in planning, design, or under construction. Completion of these projects will benefit an additional 75,000 acres of aquatic and floodplain habitat. The Conservancy supports the $17,880,000 proposed for Environmental Management Program in fiscal year 2013.

Missouri River Fish and Wildlife Recovery Program.—Record upper basin precipitation in 2011 brought historic flooding to the Missouri River. The Recovery Program is expending funds to compile information on the impacts of the floods to native species and various Recovery projects while conducting a study on how Recovery Program actions could reduce impacts from future floods. The Conservancy supports restoration of funding for the Missouri River Ecosystem Restoration Plan (MRERP) as part of the $90 million proposed for Missouri River Recovery Program (MRRP) in fiscal year 2013.

Chicago Sanitary and Ship Canal Dispersal Barrier.—Invasive plants, invertebrates, and fish pose serious threats to the biodiversity and fisheries of the Great Lakes and Mississippi River basins, which are home to nearly 50 percent of our Nation's freshwater fish species and support sport and commercial fisheries worth billions of dollars. This project seeks to prevent the immediate invasion of the Great Lakes by Asian carp by completing three electronic barriers in the Construction phase. The Nature Conservancy supports the budget request of $24.5 million.

GENERAL INVESTIGATION PRIORITIES

Puget Sound Nearshore Marine Habitat Restoration.—This study, when completed, will identify restoration and protection needs and opportunities in the nearshore regions of Puget Sound. The Sound supports the second largest U.S. port (combined Ports of Seattle and Tacoma) for container traffic that has accounted for more than $70 billion in foreign trade; it is an economic priority to ensure that

Puget Sound maintains the ecological resiliency to sustain vital services for both people and nature. The Conservancy supports the proposed $850,000 in fiscal year 2013 to carry out this investigation.

Great Lakes and Mississippi River Interbasin Study.—The Conservancy encourages the Congress to instruct COE to deliver recommendations in a much shorter timeframe—2 years—to address the urgent problem of invasive species in the Chicago Area Waterway System (CAWS), and to focus their attention and resources on the CAWS alone, as it is the most urgent and significant invasion threat, the only continuous connection, and only pathway with a proven invasion history. The Conservancy requests no less than $3 million for Great Lakes and Mississippi River Interbasin Study.

Illinois River Basin Restoration Program.—This Federal-State partnership sustains the health of the entire Illinois River Basin through projects that restore habitats, species, and the natural processes that sustain them. It complements other Federal programs such as the Illinois Conservation Reserve Enhancement Program and Environmental Management Program of the Upper Mississippi, yet is unique in its basin-wide approach to restoration. The Conservancy supports the $400,000 funding proposed for this program in fiscal year 2013.

Lower Mississippi River Resource Assessment.—Flood control and drainage systems have accelerated erosion and habitat loss along the Lower Mississippi River and its tributaries. Working with the Department of the Interior, COE will evaluate river management, habitat, and public access to recommend actions for addressing current and future needs. The Conservancy supports the $571,000 included for this program in fiscal year 2013.

Willamette River Floodplain Restoration Study.—COE and the Conservancy are working together to identify ecological flow requirements downstream of Corps dams on the Willamette River and incorporate those flows into dam operations to improve fish and wildlife habitat and community flood protection. Additionally, this study will assess the potential for floodplain restoration in the Middle Fork and Coast Fork tributaries of the Willamette River to reduce flood damage while restoring natural wetlands and promoting ecosystem restoration. The Conservancy supports the $380,000 proposed in fiscal year 2013 to continue this study.

Yellowstone River Corridor Comprehensive Study.—Funding these ongoing economic, fisheries, and wetlands studies will help ensure that the longest free-flowing river in the lower 48 States maintains its natural functions while supporting irrigation and other uses of its waters. The study will help determine the significance of the cumulative effects of water use on aquatic species and riparian hardwood forests, while guiding the establishment of beneficial management practices. The Conservancy supports the proposed $200,000 for fiscal year 2013.

CONTINUING AUTHORITIES PROGRAM

Section 1135, Project Modifications for Improvement of the Environment and Section 206, Aquatic Ecosystem Restoration.—Adequate funding for the Continuing Authorities Programs (CAPs) will ensure support for a section 1135 project at Spunky Bottoms and a section 206 project at Emiquon East, both located in Illinois and both serving as model floodplain restoration and reconnection projects. Demand for these valuable programs continues to outstrip funding, which is why the Conservancy urges the subcommittee to match the fiscal year 2012 funding level of $7,909,000 each for the 1135 and 206 CAPs in fiscal year 2013.

BUREAU OF RECLAMATION

Upper Colorado River Endangered Fish Recovery and San Juan River Basin Recovery Programs.—These programs take a balanced approach to restore four endangered fish species by implementing a range of basin-wide strategies, including improved management of Federal dams, river and floodplain habitat improvement, stocking of endangered fish, and management of non-native fish species. The Conservancy supports the proposed $8,387,000 in fiscal year 2013 for the two programs and the extension of their full base funding through 2019.

Platte River Recovery Implementation Program.—The program helps restore the four endangered or threatened species in the basin—whooping crane, interior least tern, piping plover, and pallid sturgeon—while enabling existing water projects in the basin to continue operations. Specifically, the program is working to increase stream flows in the central Platte River at ecologically and economically important times; enhance, restore and protect lands for target bird species; and offset post-1997 depletions. The Conservancy supports the proposed $8 million for this recovery effort in fiscal year 2013.

Basin Studies and WaterSMART.—We support the request for the basin study programs and WaterSMART grant programs. These programs support sustainable water use and management by focusing on water conservation, reuse and recycling, and on environmental protection and restoration. We also support the proposed funding for the Bureau's environmental restoration work, including the programs in the California Bay Delta and Colorado River.

DISCRETIONARY FUNDS

We support the approach that the Congress took in the fiscal year 2012 budget to provide additional funds so that many important on-going projects could continue toward completion. Our Connecticut River Planning Study will be finalized in fiscal year 2013 and would benefit from such flexibility.

Connecticut River Watershed Study.—This project will restore 410 miles of river flow and thousands of acres of natural habitat in the Connecticut River Basin. The study identifies dam management modifications for environmental benefits while maintaining beneficial human uses. After more than $1 million in investments by the Federal Government, this study is entering its final year, ahead of schedule and under budget. We respectfully request $300,000 to complete the critical final phase of this study, enabling the use of study products in a Federal Energy Regulatory Commission relicensing of five dams what influence flow on a 175-mile reach of the river.

The Conservancy would like to thank the subcommittee for supporting the restoration of large scale restoration programs over the last decade. These programs have been essential to restoring and maintaining some of America's most precious and imperiled ecosystems. We are also appreciative of past support for smaller-scale projects that provide cumulative benefits and serve as powerful demonstrations of effective restoration.

PREPARED STATEMENT OF THE RED RIVER VALLEY ASSOCIATION

Madam Chair and members of the subcommittee: I am Dan York, Red River Valley Association (RRVA) President, and pleased to represent the Red River Valley Association, 629 Spring Street, Shreveport, Louisiana. Our organization was founded in 1925 with the express purpose of uniting the citizens of Arkansas, Louisiana, Oklahoma, and Texas to develop the land and water resources of the Red River Basin.

The resolutions contained herein were adopted by the Association during its 87th Annual Meeting in Shreveport, Louisiana, on February 23, 2012, and represent the combined concerns of the citizens of the Red River Basin area as they pertain to the goals of the Association. A summary of the Civil Works projects and requested funding is included in this testimony.

The President's fiscal year 2013 budget included $4.731 billion for the Civil Works programs. This is $269 million less than what the Congress appropriated in fiscal year 2012. The administration fails to recognize Corps of Engineers' (COE) critical role as stewards of our Nation's water resources, and the vital importance of our water resources infrastructure to our economic and environmental well-being. The problem is also how the administration distributes funds. A few projects received the full "Corps Capability" to the detriment of many projects that receive no funding. The $4.731 billion level does not come close to the real needs of our Nation. A more realistic funding level to meet the existing needs of the Civil Works program is $6 billion for fiscal year 2013. The traditional Civil Works programs remain at the low, unacceptable level as in past years. These projects are the backbone to our Nation's infrastructure for waterways, flood prevention, water supply, recreation, and ecosystem restoration. We remind you that Civil Works projects are a true "jobs program" in that up to 85 percent of project construction funding is contracted to the private sector; 100 percent of the construction, as well as much of the architect and engineering work. Not only do these projects provide jobs, but provide economic development opportunities for our communities to grow and prosper, creating permanent jobs.

We want to point out that we appreciate the funding the Congress enacted in the fiscal year 2012 Consolidated Appropriation Act and fiscal year 2012 supplemental. We encourage the Congress to increase the "water" share of the total Energy and Water Bill closer to the $6 billion Corps capability.

We have great concerns over the issue of "earmarks". Civil Works projects are not earmarks. Civil Works projects go through a process; reconnaissance study, feasibility study, benefit to cost ratio test, EIS, peer review, review by agencies, public review and comment, final Chief of Engineer approval, authorization by all of the

Congress in a Water Resources Development Act (WRDA) bill and signed by the President. WRDA 2007 added an independent review of major projects. No other Federal program goes through such a rigorous approval process. Each justified project "stands alone", are proven to be of national interest and should be funded by project. For most projects there is local sponsor cost sharing during the feasibility study, construction, and for operations and maintenance (O&M). Those who have contributed, in most cases—millions of dollars—to the process, must have the ability to have a say for their projects to get funded. That voice is through their congressional delegation. We believe that earmarks are not in the national interest, but it does not pertain to the Civil Works program. For civil works it is an issue of priority of projects to be funded and who will determine that, Office of Management and Budget or the Congress. We hope the Congress takes back their responsibility to set civil works priorities and to determine how its citizens' tax dollars are spent.

The Inland Waterways Trust Fund (IWTF) is inadequately funded by the existing fuel tax rate. There is no doubt that something must be done to increase the revenue in the fund. The needs of the IWTF should be analyzed and determine what increase to the existing fuel tax would maintain the necessary income flow to keep projects funded from the IWTF. The final proposal must be fair to tributary waterways and be applied equally to all industries using the waterways.

I would now like to comment on some of our specific requests for the future economic well being of the citizens residing in the four State Red River Basin regions.

Navigation.—The J. Bennett Johnston Waterway is living up to the expectations of the benefits projected. We are extremely proud of our public ports, municipalities, and State agencies that have created this success. This upward "trend" in usage will continue as new industries commence operations. A major power company, CLECO, has invested $1 billion in its Rodemacher Plant near Boyce, Louisiana, on the lower Red River and has started moving more than 2.5 million tons of "petroleum coke" and limestone, by barge. This project is a reality and there are many more industries considering using our waterway and locating at the ports.

We have a serious issue for the J. Bennett Johnston Waterway O&M in the President's budget. The administration allocated $8,434,000 for fiscal year 2013, $2,566,000 less than what is required for 24/7 lock operations and dredging. This drastic reduction will directly impact the ability to conduct maintenance dredging and the authorized 9-foot channel will not be maintained. It is difficult to understand why the administration would fund O&M at the $11 million range for 5 years and suddenly make a drastic reduction that will have such a negative impact on a waterway that has yearly increased its tonnage. If the required funding level of at least $11 million is not appropriated the waterway may actually shut down to all traffic and industry will see the waterway as unreliable and choose alternative modes of transportation, impacting ports, and jobs.

The administration is introducing a new metric to determine lock operations. The hours of operations for each lock would be determined by the number of commercial lockages per year. Reducing the hours of operations will discourage industry from using the Waterway; therefore, further reducing the number of lockages sending the Waterway into a lower-use status. Instead of finding ways to close down waterways the administration should be promoting initiatives to increase waterborne transportation. The Congress must stop these destructive actions.

Red River Navigation Into Southwest Arkansas Feasibility Study.—This region of Southwest Arkansas and Northeast Texas continues to suffer major unemployment and this navigation project, although not the total solution will help revitalize the economy. Due to the time lapsed in the study the "freight rates" calculated a number of years ago they must be re-evaluated. To date the local sponsor, Arkansas Red River Commission, has invested more than $4 million to cost share in this study. Since no funding has been appropriated for this study the Commission will fully fund a private company to conduct a full investigation to insure all benefits have been identified. This feasibility study has been ongoing for more than 10 years and the Commission is making every effort to bring it to a successful conclusion. The administration and the Congress needs to make the Federal contribution and the same commitment the local sponsor and State of Arkansas has made.

Flood Prevention.—What will happen when we ignore our levee systems? We know the Red River levees in Arkansas do not meet Federal standards, which is why we have the authorized project line item, "Red River Below Denison Dam, TX, AR & LA". Now is the time to bring these levees up to standards, before a major flood event.

We continue to consider flood control a major objective and request you continue funding the levee rehabilitation projects ongoing in Arkansas. Out of 11 levee sections, 5 have been completed and brought to Federal standards. The Red River

Levee District (AR) is prepared to provide lands, easements, and rights of way for the next major rehabilitation of the Lafayette County levees.

The levees in Louisiana have been incorporated into the Federal system; however, they do not meet current safety standards. These levees do not have a gravel surface roadway, threatening their integrity during times of flooding. It is essential for personnel to traverse the levees during a flood to inspect them for problems. Without the gravel surface the vehicles will cause rutting, which can create conditions for the levees to fail. A gravel surface will insure inspection personnel can check the levees during the saturated conditions of a flood.

Bank Stabilization.—One of the most important, continuing programs, on the Red River is bank stabilization in Southwest Arkansas and North Louisiana under the authorized project; Red River Emergency Bank Protection. We must stop the loss of valuable farmland that erodes down the river and interferes with the navigation channel. In addition to the loss of farmland is the threat to public utilities such as levees, roads, electric power lines and bridges; as well as increased dredging cost in the navigable waterway in Louisiana. These bank stabilization projects are compatible with subsequent navigation into Arkansas, and we urge that they be continued in those locations designated by COE to be the areas of highest priority.

Water Quality.—The Assistant Secretary of the Army (Civil Works), in October 1998, agreed to support a re-evaluation of the Wichita River Basin tributary of the Chloride Control Project. The re-evaluation report was completed and the Director of Civil Works signed the Environmental Record of Decision. The plan was found to be economically justified. Then the ASA (CW) directed that construction would not proceed until a local sponsor was found to assume 100 percent of the O&M for the project. The 2007 WRDA bill included language that clarified that all aspects of this project will be at full Federal expense, to include O&M. Over the past years, there has been a renewed interest by the Lugart-Altus Irrigation District to evaluate construction of Area VI, of the Chloride Control Project, in Oklahoma. They have obtained the support of many State and Federal legislators, as well as the Oklahoma Governor in support of a re-evaluation report. The western areas of Texas and Oklahoma are water deprived and sorely need the Chloride Control Project. The need for water quality and quantity will increase over time and this project will address those needs, as long as Federal funding is appropriated to keep the project moving ahead.

Project Funding Requests.—Included in this testimony are tables displaying the Civil Works projects in the Red River Valley and the appropriation needs for fiscal year 2013.

Thank you for the opportunity to present this testimony and project details of the Red River Valley Association on behalf of the industries, organizations, municipalities and citizens we represent throughout the four State Red River Valley region. The Civil Works program directly relates to national security by investing in economic infrastructure. If waterways are closed companies will not relocate to other parts of the country—they will move over seas. If we do not invest now there will be a negative impact on our ability to compete in the world market threatening our national security.

Grant Disclosure.—The Red River Valley Association has not received any Federal grant, sub-grant or contract during the current fiscal year or either of the 2 previous fiscal years.

RED RIVER VALLEY ASSOCIATION OPERATION AND MAINTENANCE PROJECTS

[In thousands of dollars]

Project	Fiscal year 2012 appropriations	Red River Valley Association fiscal year 2013 request	President's fiscal year 2013 budget
DE Queen Lake, Arkansas	1,654	3,393	1,870
Dierks Lake, Arkansas	1,393	2,213	1,567
Gillham Lake, Arkansas	1,319	1,437	1,463
Millwood Lake, Arkansas	2,507	6,690	2,680
Bayou Bodcau Reservoir, Louisiana	2,016	1,891	1,041
Bayou Pierre, Louisiana	23	36	24
Caddo Lake, Louisiana	215	522	216
Wallace Lake, Louisiana	234	997	232
J. Bennett Johnston Waterway, Louisiana	11,165	25,633	8,434
Basic Annual Operation and Maintenance	7,565 (w/Suppl 3,600)	12,230	.....
Backlog Maintenance	.....	13,403	.....

RED RIVER VALLEY ASSOCIATION OPERATION AND MAINTENANCE PROJECTS—Continued

[In thousands of dollars]

Project	Fiscal year 2012 appropriations	Red River Valley Association fiscal year 2013 request	President's fiscal year 2013 budget
Old River, Louisiana (MR&T)	.....	21,647	8,050
Broken Bow Lake, Oklahoma	2,017	7,025	2,425
Hugo Lake, Oklahoma	1,519	1,716	1,716
Pine Creek Lake, Oklahoma	1,229	1,053	1,053
Sardis Lake, Oklahoma	982	3,801	3,801
Waurika Lake, Oklahoma	1,507	1,616	1,616
Chloride Control, Area VIII, Texas	1,562	1,529	1,529
Denison Dam and Lake Texoma, Texas	6,803	13,837	7,137
Basic Annual Operation and Maintenance	.....	6,393	.....
Backlog Maintenance	.....	7,444	.....
Estelline Springs, Texas	43	42	42
Lake Kemp, Texas—Total Need	179	241	241
Basic Annual Operation and Maintenance	.....	214	.....
Reallocation Study	.....	27	.....
Pat Mayse Lake, Texas	1,187	2,421	1,148
Jim Chapman Lake, Texas	1,555	4,553	1,736
Lake of the Pines, Texas	3,393	8,848	3,529
Wright Patman Dam and Lake, Texas	3,771	12,888	3,513

RED RIVER GENERAL INVESTIGATION AND CONSTRUCTION GENERAL PROJECTS

[In thousands of dollars]

	Fiscal year 2012 appropriations	Red River Valley Association fiscal year 2013 request	President's fiscal year 2013 budget
Studies (GI)			
Navigation into Southwest Arkansas: Feasibility	.....	302	.....
Red River Waterway, Louisiana—12' Channel, Recon	.....	100	.....
Bossier Parish, Louisiana	.....	270	.....
Cross Lake, Louisiana Water Supply Supplement	.....	.....	.....
Southeast Oklahoma Water Resource Study: Feasibility	.....	500	.....
Washita River Basin, Oklahoma	.....	500	.....
Southwest Arkansas Ecosystem Restoration: Recon Study	.....	47	.....
Cypress Valley Watershed, Texas	.....	175	.....
Sulphur River Basin, Texas	.....	1,000	.....
Wichita River Basin above Lake Kemp, Texas: Recon	.....	100	.....
Red River Above Denison Dam, Texas and Oklahoma: Recon	.....	100	.....
Red River Waterway, Index, Arkansas to Denison Dam	.....	100	.....
Mountain Fork River Watershed, Oklahoma and Arkansas, Recon	.....	.....	.....
Walnut Bayou, Little River, Arkansas	.....	100	.....
Little River County/Ogden Levee, Arkansas, Recon	.....	100	.....
Red River Waterway, Index to Denison, Bendway	.....	.....	.....
Construction General (CG)			
Red River Waterway: J.B. Johnston Waterway, Louisiana	1,000	22,000	2,000
Chloride Control Project, Texas and Oklahoma	.....	8,500	.....
Texas—7,500/Oklahoma—800	[1] 7,200	[2] 1,300	.....
Red River Below Denison Dam; Arkansas and Louisiana	90	18,000	.....
Bowie County Levee, Texas	.....	.....	.....
Red River Emergency Bank Protection	.....	20,000	.....
McKinney Bayou, Arkansas, PED	.....	.....	.....
Continuing Authority Program (CAP)			
Big Cypress Valley Watershed, Texas: Section 1135	.....	.....	.....
Palo Duro Creek, Canyon, Texas: Section 205	.....	100	.....
Millwood, Grassy Lake, Arkansas: Section 1135	.....	100	.....
Miller County Levee, Arkansas: Section 1135	.....	.....	.....
Oklahoma Comprehensive Water Planning: Section 22	.....	500	.....

[1] Texas
[2] Oklahoma

DEPARTMENT OF ENERGY

PREPARED STATEMENT OF THE AMERICAN COUNCIL FOR AN ENERGY-EFFICIENT ECONOMY

Dear Chairwoman Feinstein and Ranking Member Alexander: We write today to encourage the subcommittee to continue funding for the Department of Energy's (DOE) Combined Heat and Power (CHP) activities within the Advanced Manufacturing Office of the Energy Efficiency and Renewable Energy Office. CHP has been funded at the $25 million level for several years, and we encourage that level of funding to continue in fiscal year 2013 for development and deployment activities. This is the only CHP funding in the entire Federal Government.

CHP—sometimes called cogeneration—is an integrated application of technologies for the simultaneous, on-site production of electricity and heat. It represents a cost-effective, near-term opportunity to improve our Nation's energy, environmental, and economic future. Currently, two-thirds of U.S. power generation fuel energy is simply thrown away as waste heat. CHP can be deployed in all 50 States, is fuel flexible, comes in many sizes, and for many applications; therefore, some CHP technologies are ready-for-market transformation activities while others are still in the development stages. In total, according to an Oak Ridge National Laboratory Report, these technologies can save 5.3 gigawatts of energy by the year 2030, the equivalent of one-half of all residential energy use in the United States today.

Secretary Chu described DOE as "bullish on CHP" in his February 16 testimony to the Senate Energy and Natural Resources Committee. He talked about his recent visit to the new CHP system at the Texas Medical Center in Houston, which, like many medical centers, universities, and cities is served by a district energy system. With DOE's support, a highly efficient CHP system producing steam and chilled water was recently installed at the medical center that saved customers more than $9 million in the first year. In the fiscal year 2013 budget request, DOE has significantly changed both the focus and the presentation of their budget. What was "Industrial Technologies Program" has now become "Advanced Manufacturing Office" and the structure provides maximum flexibility for funding. The budget justifications, therefore, contain no mention of continued work on CHP. We believe this is an oversight and urge continued funding for this important program to address development, demonstration, and market transformation activities in CHP. Given the efficiency, environmental and grid reliability benefits of CHP and district energy, it is important that DOE programs specifically address development, deployment, and market barriers related to these systems.

Thank you for your attention to this request.

National Organizations
Alliance for Industrial Efficiency
American Council for an Energy-Efficient Economy
American Gas Association
Energy Solutions Center
International District Energy Association
Mechanical Contractors Association of America (MCAA)
Sheet Metal and Air Conditioning Contractor's National Association (SMACNA)
U.S. Clean Heat and Power Association

Alaska
University of Alaska, Fairbanks

Arizona
Affiliated Engineers, Inc.
NRG Energy Center Phoenix
NRG Energy Center Tucson

California
Affiliated Engineers, Inc.
Capstone Turbine Corporation
Chem-Aqua, Inc.
Goss Engineering, Inc.
Leva Energy
NRG Energy Center San Diego
NRG Energy Center San Francisco
Solar Turbines Incorporated
Syska Hennessy Group, Inc.
University of California, San Francisco
Vanderweil Engineers
Veolia Energy

Colorado
Colorado State University

Connecticut
COWI North America Energy
Fibrelite
The Hartford Steam Company

Delaware
ICETEC Energy Services
NRG Energy Center Dover

Florida
Affiliated Engineers, Inc.
Chem-Aqua, Inc.
ONICON Incorporated
Syska Hennessy Group, Inc.
TMEnergyLLC

Georgia
Chem-Aqua, Inc.
RMF Engineering, Inc.
Syska Hennessy Group, Inc.

Iowa
Statistics & Control, Inc.

Illinois
Affiliated Engineers, Inc.
Caterpillar
Eastern Illinois University
Energy Resources Center, University of Illinois at Chicago IL
Energy Solutions Center
Gas Technology Institute
Recycled Energy Development
Stoneham Consulting
Syska Hennessy Group, Inc.

Indiana
Applied Engineering Services
Chem-Aqua, Inc.
Citizens Energy Group

Massachusetts
Syska Hennessy Group, Inc.
UMass Medical School
Vanderweil Engineers
Veolia Energy

Maryland
Affiliated Engineers, Inc.
CPF Underground Utilities, Inc.
Evapco, Inc.
Piping & Corrosion Specialties, Inc.
RMF Engineering, Inc.
Veolia Energy

Michigan
Detroit Thermal
Veolia Energy

Minnesota
Cummins Power Generation
District Energy St. Paul
Ever-Green Energy
FVB Energy, Inc.
Kattner Associates LLC
NRG Energy Center Minneapolis
Uponor

Missouri
Burns & McDonnell Engineering Company, Inc.
Veolia Energy

North Carolina
Affiliated Engineers, Inc.
RMF Engineering, Inc.
SPX Flow Technology Systems
Syska Hennessy Group, Inc.

Nebraska
Energy Systems Company

New Hampshire
TVC Systems
Waldron Engineering & Construction, Inc.

New Jersey
Blue Sky Power
Chem-Aqua, Inc.
Concord Engineering
DCO Energy LLC
Energenic-US LLC
Integrated CHP Systems
Joseph Technology Corporation
Kessler Ellis Products
NRG Energy Center Princeton
Syska Hennessy Group, Inc.
Thermo Systems LLC
Veolia Energy

Nevada
Chem-Aqua, Inc.
Southwest Gas Corporation
Vanderweil Engineers

New York
Alstrom Energy Group
Cool Systems
GI Endurant LLC
Hudson Technologies
Tricon Piping Systems, Inc.
Vanderweil Engineers
Veolia Energy
Waldron Engineering of NY, P.C.

Ohio
Bahnfleth Group Advisors, LLC
The Medical Center Company
Youngstown Thermal

Oklahoma
Oklahoma Natural Gas Company
Veolia Energy

Oregon
Veolia Energy

Pennsylvania
Center for Building Performance & Diagnostics, Carnegie Mellon University
Elliott Group
NRG Energy Center Harrisburg
NRG Energy Center Pittsburgh
Philadelphia Gas Works
The Pennsylvania State University
Vanderweil Engineers
Veolia Energy

South Carolina
RMF Engineering, Inc.

Texas
Affiliated Engineers, Inc.
Chem-Aqua, Inc.
Siemens Energy, Inc.
Syska Hennessy Group, Inc.
Thermal Energy Corporation

Utah
Aquatherm, Inc

Virginia
APPA: Leadership in Educational Facilities
Resource Dynamics Corporation
Syska Hennessy Group, Inc.
Vanderweil Engineers

Washington
Affiliated Engineers, Inc.
Cascade Power Group
Infinia Corporation
VA:W

Washington, DC
Environmental and Energy Study Institute
Syska Hennessy Group, Inc.

Wisconsin
Affiliated Engineers, Inc.
Syska Hennessy Group, Inc.

PREPARED STATEMENT OF THE AMERICAN GEOSCIENCES INSTITUTE

To the Chairwoman and members of the subcommittee: Thank you for this opportunity to provide the American Geosciences Institute's (AGI) perspective on fiscal year 2013 appropriations for geoscience programs within the subcommittee's jurisdiction. The President's budget request for the Department of Energy (DOE) research programs provides important and modest investments in research and development (R&D) that will help sustain energy resources for economic growth of resilient communities. AGI strongly supports the wise investments in the Office of Science ($5 billion) and Energy Efficiency and Renewable Energy ($2.3 billion). AGI requests at least $5 million in additional funding for the Science Graduate Fellowship Program within the Office of Science's Workforce Development for Teachers and Scientists ($14.5 million fiscal year 2013 request) which are zeroed out in the President's proposal.

AGI is concerned about the limited investments in oil and natural gas R&D within the Office of Fossil Energy. Oil and natural gas supply 62 percent of our Nation's energy (2010 consumption from Energy Information Administration) and will continue to play a major role in the future. These investments will drive innovation to support and improve safe and effective domestic development of cleaner fossil fuels. The bulk of DOE's oil and gas R&D investments go to institutions of higher education for training and research. The United States has a substantial workforce and significant investments in oil and natural gas research, development, exploration, and production. Steady, but modest Federal investments in fossil energy R&D with a longer-term strategic plan would benefit the academic, private, and public sectors.

The Office of Fossil Energy suffers from an unbalanced portfolio that focuses primarily on coal, faces uncertainty about direction and investments, and receives inconsistent funding. We ask for the subcommittee's support for oil and gas, unconventional natural gas, methane hydrates, and carbon sequestration R&D so the Nation can develop a diverse portfolio of energy resources while enhancing carbon mitigation strategies to secure clean, affordable, and secure energy supplies for now and the future.

AGI is a nonprofit federation of 50 geoscientific and professional societies representing more than 250,000 geologists, geophysicists, and other Earth scientists. Founded in 1948, AGI provides information services to geoscientists, serves as a voice for shared interests in our profession, plays a major role in strengthening geoscience education, and strives to increase public awareness of the vital role the geosciences play in society's use of resources, resilience to hazards, and the health of the environment.

DEPARTMENT OF ENERGY'S OFFICE OF SCIENCE

The DOE Office of Science is the single largest supporter of basic research in the physical sciences in the United States, providing more than 40 percent of total funding for this vital area of national importance. The Office of Science manages fundamental research programs in basic energy sciences, biological and environmental sciences, and computational science and, under the budget request, would receive $5 billion in fiscal year 2013. AGI asks that you support this funding level.

The President's request would provide $14.5 million for Workforce Development for Teachers and Scientists, a program to ensure that DOE and the Nation have

a sustained pipeline of highly skilled and diverse science, technology, engineering, and mathematics (STEM) workers. AGI strongly supports investments in geoscience education, training and workforce development within DOE and other Federal agencies. We are concerned that the request is $5 million less than fiscal year 2012 enacted and that DOE proposes no funding for the Science Graduate Fellowship program. We would encourage support for graduate student fellowships through DOE to allow students to complete advanced training and to ensure a skilled workforce in energy-related sciences.

DEPARTMENT OF ENERGY'S ENERGY EFFICIENCY AND RENEWABLE ENERGY

Within Energy Efficiency and Renewable Energy, the President's fiscal year 2013 budget request would increase investments for R&D for many renewable energy resources. AGI applauds the $65 million requested for geothermal R&D and greatly appreciates previous support from the Congress for this key alternative energy resource. The geothermal research program within the Renewable Energy account, which funds Earth-science research in materials, geofluids, geochemistry, geophysics, rock properties, reservoir modeling, and seismic mapping, will provide the Nation with the best research to build a successful and competitive geothermal industry. AGI supports the Energy Innovation Hub focused on critical materials and hope this hub will consider ways to improve exploration, extraction and processing of necessary raw materials as well as replacement materials.

DEPARTMENT OF ENERGY'S FOSSIL ENERGY RESEARCH AND DEVELOPMENT

AGI urges the subcommittee to provide more balanced support for the Fossil Energy R&D portfolio in the fiscal year 2013 Energy and Water Development appropriations bill. Many Members of Congress have strongly emphasized the need for a responsible, diversified, and comprehensive energy policy for the Nation. The growing global competition for fossil fuels has led to a repeated and concerted request by the Congress to ensure the Nation's energy security. The President's proposal, which provides no funding for oil R&D or for unconventional fossil energy, is short sighted and inconsistent with congressional and public concerns. No funding for oil and unconventional fossil energy R&D will hinder our ability to achieve energy stability and security.

The research dollars invested in petroleum R&D go primarily to universities, State geological surveys, and research consortia to address critical issues like enhanced recovery from known fields and unconventional sources that are the future of our natural gas supply. This money does not go into corporate coffers, but it helps American businesses remain competitive by giving them a technological edge over foreign companies. All major advances in oil and gas production can be tied to research and technology. AGI strongly encourages the subcommittee to ensure a balanced and diversified energy research portfolio that does not ignore the Nation's primary sources of energy for the near future, fossil fuels.

Thank you for the opportunity to present this testimony to the subcommittee.

PREPARED STATEMENT OF THE AMERICAN PUBLIC POWER ASSOCIATION

The American Public Power Association (APPA) respectfully requests funding for the Renewable Energy Production Incentive, Power Marketing Administrations, storage for high-level nuclear waste, the Nuclear Loan Guarantee Program, the Department of Energy Water Power Program, energy conservation, weatherization, clean coal, fuel cells, fuel and powering systems, the Navajo Electrification and Demonstration Program, and the Federal Energy Regulatory Commission.

APPA is the national service organization representing the interests of more than 2,000 municipal and other State and locally owned electric utilities in 49 States (all but Hawaii). Collectively, public power utilities deliver electricity to 1 of every 7 electric consumers (approximately 46 million people), serving some of the Nation's largest cities. However, the vast majority of APPA's members serve communities with populations of 10,000 people or less.

We understand that the Congress is operating in a tight fiscal environment. APPA's priority is to support programmatic requests that bring down costs, conserve resources, or benefit our public power customers in other ways. We appreciate the opportunity to submit this statement outlining our fiscal year 2013 funding priorities within the jurisdiction of the Energy and Water Development, and Related Agencies subcommittee.

Renewable Energy Production Incentive.—APPA is disappointed that the administration and the Congress have decided to stop funding the Renewable Energy Pro-

duction Incentive (REPI). REPI was the first attempt by the Congress to provide comparable renewable incentives to the nonprofit electric utility industry, and we continue to seek comparability to this day. The elimination of funding for the REPI program was a step backward in this process. Defunding not only decreases incentives for new production, but utilities who had been receiving the funding are stranded mid-program. Five million dollars would restore funding to the program for fiscal year 2013, but any funding would help restore payments to those already approved for the incentive.

POWER MARKETING ADMINISTRATIONS

Power Marketing Administration Proposals.—The President's National Commission on Fiscal Responsibility and Reform proposed a measure for all four Power Marketing Administrations (PMAs) that would have had the effect of raising the rates for PMA customers. We appreciate that the fiscal year 2013 request did not include this type of proposal.

Purchase Power and Wheeling.—We urge the subcommittee to authorize appropriate levels for use of receipts so that the Western Area Power Administration (WAPA), the Southeastern Power Administration (SEPA), and the Southwestern Power Administration (SWPA) can continue to purchase and wheel electric power to their municipal and rural electric cooperative customers. Although appropriations are no longer needed to initiate the purchase power and wheeling (PP&W) process, the subcommittee continues to establish ceilings on the use of receipts for this important function. The PP&W arrangement is effective, has no impact on the Federal budget, and is supported by the PMA customers who pay the costs. We support an increase over the funding levels of the administration's budget for fiscal year 2013, which are as follows:

—$243 million for Western Area Power Administration (WAPA);
—$88 million for Southeastern Power Administration (SEPA); and
—$41 million for Southwestern Power Administration (SWPA).

Construction.—We urge the subcommittee to authorize appropriate levels of funding for the construction budgets of WAPA, SEPA, and SWPA. These budgets have continued to decrease over the years; however, this funding remains critical to the operation and maintenance of the PMAs.

Storage for High-Level Nuclear Waste.—APPA is disappointed that the administration has provided little funding for nuclear waste disposal or storage in the budget request. We support the work and the findings of the Blue Ribbon Commission on America's Nuclear Future and hope that the administration and the Congress start working to implement the recommendations.

Nuclear Loan Guarantees.—APPA is disappointed with the administration's cancellation of the Nuclear Loan Guarantee program and requests that the Committee restore funding to this important program.

Department of Energy Waterpower Program.—APPA was extremely disappointed that funding for water power was decreased to $20 million (from $59 million in fiscal year 2012) while most other renewable resources were increased in the administration's fiscal year 2013 request. APPA believes there should be parity among renewable resource funding. APPA requests $100 million for fiscal year 2013 for the DOE's Water Power Program. At a time when utilities around our country must focus on finding carbon-free sources of energy because of pending State and Environmental Protection Agency regulations, the importance of hydropower research and development is more important than ever before. Not only is hydropower a renewable resource, but it can be used as baseload generation to back up more intermittent renewables such as wind and solar power.

Energy Conservation.—APPA appreciates the funding increases for energy efficiency programs provided in the President's budget. The budget funding levels for fiscal year 2013 are as follows:

—Building technologies: $310 million;
—Advanced manufacturing: $290 million;
—Federal Energy Management Program: $32 million; and
—Vehicle technologies: $420 million.

We urge the subcommittee to maintain these funding levels. While these requests are all lower than the President's fiscal year 2012 requests, they still represent increases over current funding levels.

Weatherization and Intergovernmental Activities.—We are pleased that the administration has requested $139 million for the Weatherization program in fiscal year 2013, a significant increase from fiscal year 2012, and we encourage the subcommittee to maintain that level of funding.

Clean Coal Power Initiative and FutureGen.—APPA is disappointed that the budget did not include funding for large scale commercial applications of carbon capture and sequestration technology. We encourage the subcommittee to include funding for Clean Coal Power Initiative (CCPI) and FutureGen. APPA strongly believes that, as the need for clean energy increases, the FutureGen project, or something similar, will be critical in nearing us to the goal of the world's first near-zero-emissions coal fired plant. We urge the subcommittee and the Congress to work with the administration on finding an appropriate role and funding level for the FutureGen project and CCPI.

Fuel Cells.—APPA was disappointed that the administration requested zero funding for fuel cell related research and development. We urge the subcommittee to allocate additional funding for this program for fiscal year 2013.

Fuels and Power Systems.—We recommend these funding levels for the following programs:

—Innovations for existing plants: $84 million;
—Advanced integrated gasification combined cycle: $80 million;
—Turbines: $45 million;
—Carbon sequestration: $150 million;
—Fuels: $25 million; and
—Advanced research: $48 million.

Navajo Electrification Demonstration Program.—APPA supports full funding for the Navajo Electrification Demonstration Program at its full authorized funding level of $15 million. The purpose of the program is to provide electric power to the estimated 18,000 occupied structures in the Navajo Nation that lack electric power. This program has been consistently underfunded.

Federal Energy Regulatory Commission (FERC).—The fiscal year 2013 budget requests $305 million for FERC, the same level as current funding. APPA supports this funding level.

PREPARED STATEMENT OF THE AMERICAN SOCIETY FOR MICROBIOLOGY

The American Society for Microbiology (ASM) is pleased to submit the following statement on the fiscal year 2013 appropriation for science programs at the Department of Energy (DOE). ASM is the largest single life science organization in the world with more than 38,000 members.

The administration's fiscal year 2013 budget request of $5 billion for DOE's Office of Science (SC) is a minimal 2.4-percent increase more than the fiscal year 2012 enacted level. We urge the Congress to approve increased resources for the research and development (R&D) managed by the SC, one of three Federal agencies identified as crucial to the future of our Nation's global competitiveness in science and technology. The SC sponsors research by multidisciplinary teams from various government institutions, academia, and the private sector. It leads the Nation in energy and environmental research and is the largest Federal sponsor of basic research in the physical sciences. DOE SC contributes to sectors of the U.S. economy, such as biotechnology, alternative energy, and environmental sciences. DOE-funded researchers and programs discover innovative technologies, methods, and commercial products that serve national priorities like climate change, environment cleanup, and renewable energy.

DOE research initiatives are producing results not possible in other research settings. Two examples are the 46 Energy Frontier Research Centers established by the SC in 2009 at universities, national laboratories, and other U.S. institutions to advance basic energy related research and the three Bioenergy Research Centers created in 2007 to focus on next-generation biofuels. DOE facilities also provide non-DOE researchers with invaluable tools that might otherwise be inaccessible like the advanced xray beam sources currently being used by industry to study the enzyme RNA polymerase II, a project based on Nobel prize winning DOE research with potential for stopping RNA viruses causing polio, hepatitis, and other infectious diseases.

SC oversees high-impact projects divided among R&D programs focused on advancing physics, computing, biology, chemistry, environmental sciences and other disciplines. It manages 10 DOE national laboratories and promotes education programs to encourage future scientists and engineers. Extramural SC funding supports about 25,000 researchers at nearly 300 U.S. universities and colleges. In fiscal year 2013, an estimated 26,500 researchers from industry, national laboratories, universities, and other nations are expected to use SC lab facilities, accessing one-of-a-kind instruments for their own research.

In addition, DOE technology transfer efforts yield exemplary successes of commercial products arising from federally funded inventions. DOE announced in February that eight of its national laboratories will participate in a pilot program expediting the transfer of DOE intellectual property rights to private companies. The newly designed Agreements for Commercializing Technology will make it easier for companies to partner with the laboratories and are expected to help U.S. businesses create new products and jobs in the science and technology sector.

DEPARTMENT OF ENERGY FUNDING STIMULATES NOVEL APPROACHES TO BIOLOGY BASED RESEARCH

The Biological and Environmental Research (BER) program within the SC is a source of groundbreaking research in genomics, climate change, greenhouse gas emissions, biofuels, contaminants in the environment and the interfaces between physical and biological sciences. Under the current DOE Strategic Plan, BER is tasked with delivering new renewable energy technologies, utilizing basic biological research to create efficient biofuels processes. BER also is expected to add significantly to our understanding of the role of microbes in geochemical cycling of carbon, nitrogen, sulfur and metals, processes that are critical to understanding climate and environmental processes.

The BER program receives about $625 million in the fiscal year 2013 request, a small 2.6-percent increase over fiscal year 2012. We urge the Congress to approve the administration's DOE budget that includes the resources for essential BER research. The budget increase is marked for developing synthetic biology tools and technologies, analyzing experimental data sets, and conducting climate studies in the Arctic. In fiscal year 2013, 65 percent of the BER budget will support research projects, while the remaining 35 percent will fund scientific user facilities that include the Atmospheric Radiation Measurement (ARM) Climate Research Facility, the William R. Wiley Environmental Molecular Sciences Laboratory (EMSL), and the Joint Genome Institute (JGI).

The fiscal year 2013 budget would support the diverse R&D portfolios of BER's two divisions: the Biological Systems Science Division and the Climate and Environmental Sciences Division, allocated about $310 million and $316 million, respectively. In fiscal year 2013, resources will be increased for research on climate change in arctic and tropical regions, as well as for a shift in emphasis from global climate modeling to smaller, regional models. The funding on systems sciences will increase investments in the development of synthetic biology tools, computational analyses of genomic datasets and biodesign technologies.

BER contributions include the Human Genome Project initiated in the 1980s and some of the Nation's earliest climate change models. BER has significantly shaped our understanding of technical fields like genomics and natural phenomena like microbial communities and their interactions with the environment. BER-funded projects also have elucidated the biogeochemical processes at work under the Earth's surface that are critical to advances in both energy and environmental research.

DEPARTMENT OF ENERGY FUNDING ADVANCES RESEARCH IN GENOME SCIENCES, BIOFUELS, AND BIOTECHNOLOGY

The BER programs biological systems sciences have a diverse R&D portfolio, focused on applying advances in systems biology research in support of DOE strategies in energy, climate, and the environment. BER supports the DOE Bioenergy Research Centers, which clearly are succeeding as innovation incubators for genetics based R&D and alternative energy development. The overarching goal of these research programs is a complete scientific portrait from the molecular to the community level of plants and microbes with potential to solve societal challenges like clean energy and pollutant decontamination. Another optimal outcome would be sufficiently detailed knowledge to develop predictive, computational models of these living systems necessary to enable synthetic biology approaches for biofuels production and understand roles of microbes in environmental and climate processes.

Funding for BER research effectively combines interdisciplinary science with powerful new tools like bioinformatics and imaging technologies developed through past DOE appropriations. Microorganisms are frequently integral components in BER-funded projects that have implications for preserving healthy environments. One example is the DOE Joint Genome Institute project that recently identified previously unknown methane producing microbes in permafrost soils, which could become a major problem through their release of greenhouse gases as climate change thaws the Earth's arctic regions. Arctic permafrost, where these microbes are abundant, sequesters an estimated 1.6 trillion metric tons of carbon. BER-supported systems

biology knowledgebase, which is community driven cyberinfrastructure for sharing and integrating data and analytical tools to accelerate predictive biology.

Ongoing DOE research is aggressively seeking new biomass sources for biofuel production, to reduce demand on corn and other food plants considered too valuable for non-food purposes.

In 2011, microbiology related results reported by DOE investigators included the following examples supported by BER genome science programs:

—BER-funded researchers sequenced many fungal genomes, which contain enzymes that break down cellulose and lignin, the two most abundant biopolymers on Earth, in order to harness these capabilities for industrial applications such as biofuels production. Another application is biopulping for the paper industry, which requires that the lignin be degraded while leaving the cellulose untouched. Forest products such as pulp and paper account for 5 percent of the Nation's gross domestic product.

—BER supported researchers have developed technologies that could be used to rewrite the genetic code of a living cell. Such technology could enable scientists to design cells that build proteins not found in nature, or engineer bacteria that are useful for bioenergy and environmental cleanups.

—Researchers completed an advanced metabolic model of the alga Chlamydomonas reinhardtii that should expedite development of algae as a viable source of renewable bioenergy.

—Genetically engineered E. coli have been manipulated to improve the bacteria's synthesis of terpene, a precursor of several biofuels, by 120 percent. Other scientists have modified E. coli and yeasts to produce the terpene called bisabolane as a promising biofuel precursor, one found to be relatively nontoxic to the microbes; unlike other biofuels like ethanol that can limit commercially viable biofuel production. Alternatively, scientists also have inserted a novel fatty acid synthesis enzyme into E. coli, a first step in biodiesel production from fatty acids.

—BER-funded researchers, using integrated genomics technologies, discovered that microorganisms play crucial roles in regulating soil carbon dynamics through several microbially mediated feedback mechanisms. This demonstrated the importance of microbial communities in projecting future climate warming. Such studies are fundamental to understanding ecosystem responses to climate change and provides a mechanistic basis for carbon climate modeling.

DEPARTMENT OF ENERGY FUNDING SUPPORTS INNOVATIVE STUDIES OF THE ENVIRONMENT

BER also sponsors research that ranges widely from molecular to field scale studies of various threats to our environment. BER manages two scientific user facilities (ARM and EMSL) and supports three strategic research areas in environmental sciences: atmospheric systems, climate and earth system modeling, and environmental system science. BER-funded researchers investigate environmental challenges like increased levels of greenhouse gases and heavy metal soil contaminants.

Several currently active CESD projects illustrate the division's unique expertise using microbial systems to protect and improve our environment:

—BER-funded researchers found that the films from some bacteria and pilin nanofilaments from bacteria have electronic conductivities, which are comparable to those of synthetic metallic nanostructures. They can also conduct over distances on the centimetre scale. The property of allowing electron transport across long distances could revolutionize nanotechnology and bioelectronics.

—Using EMSL equipment, a DOE university team was the first to describe the molecular structure of proteins in Shewanella oneidensis that allow the bacterium to transfer an electrical charge. The proteins exist within small "nanowires" constructed by the bacteria that extend through their cell walls and trap minerals. The discovery is a step toward potentially using microbes as a source of electricity, perhaps as microbial fuel cells. The results also have possible relevance to microbial cleanup of environmental contaminants.

—BER supported researchers found that the dual role of dissolved organic matter in mercury reduction and complexation in anoxic environments where both bacterial methylation and DOM reduction occur. Such studies, provide mechanistic insights into the factors controlling mercury species transformation, geochemical cycling and especially toxic methylmercury production, which are critical to mercury remediation in groundwater.

CONCLUSION

ASM recommends that the Congress approve the proposed fiscal year 2013 budget, in support of the DOE's SC. DOE science programs routinely generate discoveries of economic and societal impact that serve the DOE mission, often by collaborating with non-DOE partners or sponsoring multidisciplinary research teams. SC also maintains unique lab facilities and institutes with robust capabilities to solve difficult, large scale problems. We ask the Congress to recognize these invaluable contributors to the economy, environment and public health by supporting increased funding for the fiscal year 2013 DOE budget.

PREPARED STATEMENT OF THE AMERICAN SOCIETY OF AGRONOMY, CROP SCIENCE SOCIETY OF AMERICA, AND THE SOIL SCIENCE SOCIETY OF AMERICA

Dear Chairwoman Feinstein, Ranking Member Alexander, and members of the subcommittee: The American Society of Agronomy (ASA), Crop Science Society of America (CSSA), and the Soil Science Society of America (SSSA), are pleased to submit comments in strong support of enhanced public investment in the Department of Energy's (DOE) Office of Science for fiscal year 2013. Specifically, ASA, CSSA, and SSSA urge the subcommittee to support DOE's Office of Science at a level of $5 billion for fiscal year 2013, as requested in the President's proposed budget (a 2.6-percent increase over the fiscal year 2012 level). A strong level of funding will enable the Office of Science to continue to deliver the scientific discoveries and major scientific tools that transform our understanding of nature and advance the energy, economic, and national security of the United States.

ASA, CSSA, and SSSA represent more than 18,000 members in academia, industry, and government, as well as 13,000 Certified Crop Advisers. The largest coalition of professionals dedicated to the agronomic, crop, and soil science disciplines in the United States, ASA, CSSA, and SSSA are dedicated to utilizing science in order to meet our growing food, feed, fiber, and fuel needs. With an ever-expanding global population and increasing food demands, investment in food and agriculture research is essential to maintaining our Nation's food, economic and national security.

DEPARTMENT OF ENERGY'S OFFICE OF SCIENCE

ASA, CSSA, and SSSA understand the challenges the Senate Energy and Water Development Appropriations Subcommittee faces with the tight budget for fiscal year 2013. We also recognize that the Energy and Water Development Appropriations bill has many valuable and necessary components, and we applaud the subcommittee for the support provided to the DOE Office of Science. For fiscal year 2013, ASA, CSSA, and SSSA recommend a funding level of $5 billion.

The Congress approved the America Creating Opportunities to Meaningfully Promote Excellence in Technology, Education, and Science (America COMPETES) Reauthorization Act of 2010 (Public Law 111–358), recognizing that an investment in basic (discovery) scientific research is essential to providing America with the brainpower necessary to maintain a competitive advantage in the global economy and keep U.S. jobs from moving overseas. Such an investment is necessary to keep U.S. science and engineering at the forefront of global research and development in the biological sciences and geosciences, computing, and many other critical scientific fields. The Office of Science supports graduate students and postdoctoral researchers early in their careers. Nearly one-third of the Office of Science's research funding goes to more than 300 colleges and universities nationwide. The Office of Science also reaches out to America's youth in grades K–12 to help improve student's knowledge of science, mathematics, and understanding of global energy and environmental challenges. The recommended funding level of $5 billion is critical to ensuring our energy self-sufficiency and addressing major environmental challenges. In addition, a funding level of $5 billion will allow the Office of Science to:

—maintain and strengthen DOE's core research programs at both the DOE national laboratories and universities;
—provide support for Ph.D.'s, postdoctoral associates, and graduate students;
—ensure maximum utilization of DOE research facilities; and
—allow the Office of Science to develop and construct the next-generation facilities necessary to maintain U.S. leadership in scientific research.

BASIC ENERGY SCIENCES

Within the DOE Office of Science, the Basic Energy Sciences (BES) program is a multipurpose, scientific research effort that fosters and supports fundamental research to expand the scientific foundations for new and improved energy tech-

nologies and for understanding and mitigating the environmental impacts of energy use. The research disciplines that the BES program supports include condensed matter and materials physics, chemistry, soil, mineralogical, and geosciences. These subjects influence virtually every aspect of energy production, conversion, transmission, storage, efficiency, and waste mitigation.

ASA, CSSA, and ASSA support funding the subprogram of Chemical Sciences, Geosciences, and Biosciences within the BES at a level of $349.4 million in fiscal year 2013. The Geosciences Research program supports research focused on developing an understanding of fundamental Earth processes that are a foundation for improved advanced energy and environmental technologies. Specifically, we support the Geosciences program to expand geochemical research and computational analysis of complex subsurface fluids and solids.

BIOLOGICAL AND ENVIRONMENTAL RESEARCH

Also within the DOE Office of Science, the Biological and Environmental Research (BER) program has advanced environmental and biological knowledge that supports national security through improved energy production, international scientific leadership, and research that improves the quality-of-life for all Americans. BER supports these vital missions through competitive and peer-reviewed research at national laboratories, universities, and private institutions. ASA, CSSA, and SSSA support the funding of BER at the President's requested level of $625.3 million for fiscal year 2013. A variety of programs within BER are essential to continued biological systems science fundamental research, geochemical observations, and determining environmental sustainability of our energy production systems. A few of these programs are further highlighted below:

—ASA, CSSA, and SSSA support funding the Office of Climate and Environmental Sciences within BER at a level of $315.6 million. This funding will support essential subsurface biogeochemical research and basic research on the fate and transport of contaminants in the subsurface.

—ASA, CSSA, and SSSA support the increase included in the President's budget for the Genomic Science Program at a level of $188.1 million for fiscal year 2013. The Joint Genome Institute (JGI) is an essential lab where synthetic molecular toolkits are developed to predict, construct, and test new biological systems for clean-energy solutions. It also uses plant and microbial systems biology to pursue breakthroughs needed to develop cellulosic biofuels.

Thank you for your consideration of our requests.

PREPARED STATEMENT OF AMERICAN SOCIETY OF PLANT BIOLOGISTS

On behalf of the American Society of Plant Biologists (ASPB), we submit this statement for the official record to support the requested level of $4.992 billion for the Department of Energy (DOE) Office of Science for fiscal year 2013. The testimony highlights the importance of biology—particularly plant biology—as the Nation seeks to address energy security and other vital issues.

ASPB recognizes the difficult fiscal environment our Nation faces but believes investments in scientific research will be a critical step toward economic recovery. We would also like to thank the subcommittee for its consideration of this testimony and for its support for the basic research mission of the DOE Office of Science.

ASPB is an organization of approximately 5,000 professional plant biology researchers, educators, graduate students, and postdoctoral scientists with members in all 50 States and throughout the world. A strong voice for the global plant science community, our mission—achieved through work in the realms of research, education, and public policy—is to promote the growth and development of plant biology, to encourage and communicate research in plant biology, and to promote the interests and growth of plant scientists in general.

FUEL, FOOD, ENVIRONMENT, AND HEALTH—PLANT BIOLOGY RESEARCH AND AMERICA'S FUTURE

Plants are vital to our very existence. They harvest sunlight, converting it to chemical energy for food and feed; they take up carbon dioxide and produce oxygen; and they are the primary producers on which all life depends. Indeed, plant biology research is making many fundamental contributions in the areas of domestic fuel security and environmental stewardship; the continued and sustainable development of better foods, fabrics, pharmaceuticals, and building materials; and in the understanding of basic biological principles that underpin improvements in the health and nutrition of all Americans.

In particular, plant biology is at the center of numerous scientific breakthroughs in the increasingly interdisciplinary world of alternative energy research. For example, interfaces among fundamental and applied plant biology, engineering, chemistry, and physics represent critical frontiers in both basic biofuels research and bioenergy production. Similarly, with the increase in plant genome sequencing and functional genomics, the interface of plant biology and computer science has become essential to our understanding of complex biological systems, ranging from single cells to entire ecosystems.

Despite the fact that foundational plant biology research—the kind of research funded by agencies such as the DOE—underpins vital advances in practical applications in energy, agriculture, health, and the environment, the amount of money invested in understanding the basic function and mechanisms of plants is relatively small. This is especially true considering the significant positive impact crop plants have on the Nation's economy and in addressing some of our most urgent challenges like energy and food security.

Understanding the importance of these areas and to address future challenges, ASPB organized the Plant Science Research Summit in September 2011. With support and funding from the National Science Foundation, U.S. Department of Agriculture, DOE, and the Howard Hughes Medical Institute, the Summit brought together representatives from across the full spectrum of plant science research to identify critical gaps in our understanding of plant biology that must be filled over the next 10 years or more to address the grand challenges facing our Nation and our planet. The grand challenges identified at the Summit include:

—To fuel the Nation's future with clean energy, improvements are needed in current biofuels technologies, including breeding, crop-production methods, and processing.

—To feed everyone well, now and in the future, advances in plant science research will be needed for higher yielding, more nutritious varieties able to withstand a variable climate.

—Innovations leading to improvements in water use, nutrient use, and disease and pest resistance that will reduce the burden on the environment are needed to allow for increases in ecosystem services such as clean air, clean water, fertile soil, and biodiversity benefits like pest suppression and pollination.

—For all the benefits that advances in plant science bestow—in food and fiber production, ecosystem and landscape health, and energy subsistence—to have lasting, permanent benefit they must be economically, socially, and environmentally sustainable.

In spring 2012, a report from the Plant Science Research Summit will be published. This report will further detail priorities and needs to address the grand challenges.

RECOMMENDATIONS

Because of our membership's extensive expertise and participation in the academic, industry, and government sectors, ASPB is in an excellent position to articulate the Nation's plant science priorities as they relate to bioenergy and, specifically, with regard to recommendations for bioenergy research funding through the DOE's Office of Science.

Within the Office of Science, the programs in Biological and Environmental Research (BER) and Basic Energy Sciences (BES) are crucial to understanding how basic biological processes work. For this reason ASPB is supportive of the fiscal year 2013 request to fund BER at $625.3 million and BES at $1.8 billion. Sustained funding for these programs is vital as the discoveries made in these areas will ultimately be the foundation for the next fuels and technologies we use in our daily lives.

In addition:

—We commend the DOE Office of Science, through their programs in BES and BER for funding the Bioenergy Research Centers and the Energy Frontier Research Centers. These centers provide a model for collective science innovation that complements DOE's essential investment in individual investigator and small group science. ASPB strongly encourages funding for the DOE Office of Science that would be specifically targeted to the funding of individual or small group grants for bioenergy research.

—Photosynthetic research is one clear example of an interface between the physical sciences and biology. The DOE Office of Science has been the major source of funding for fundamental studies of photosynthesis, which is the primary source of chemical energy on the planet. However, the current funding available for photosynthetic research is not commensurate with the central role that pho-

tosynthesis plays in energy capture and carbon sequestration. Hence, ASPB calls for the Office of Science to expand its research portfolio in the area of photosynthesis and carbon capture.

—Considerable research interest is now focused on the processing of plant biomass for energy production. If biomass crops, including woody plants, are to be used to their full potential, extensive effort must be expended to improve our understanding of their basic biology and development, as well as their agronomic performance. Therefore, ASPB calls for DOE to support research targeted at efforts to increase the utility and agronomic performance of bioenergy feedstocks.

Thank you for your consideration of our testimony on behalf of the American Society of Plant Biologists.

PREPARED STATEMENT OF ASME

Madam Chairwoman, ranking member, and members of the subcommittee: The Energy Committee (EnComm) of ASME's Technical Communities is pleased to provide this testimony on the fiscal year 2013 budget request for research and development (R&D) programs in the Department of Energy (DOE).

INTRODUCTION

ASME is a more than 120,000-member nonprofit, worldwide educational, and technical society. It conducts one of the world's largest technical publishing operations, holds more than 30 technical conferences and 200 professional development courses each year, and sets some 600 industrial and manufacturing standards, many of which have become de facto global technical standards. The Energy Committee of ASME's Technical Communities comprises 64 members from 10 ASME Divisions, 2 Institutes and Codes & Standards, representing approximately 40,000 of ASME's members.

ASME has long advocated a balanced portfolio of energy supplies to meet the Nation's energy needs, including advanced clean coal, petroleum, nuclear, natural gas, waste-to-energy, biomass, solar, wind, and hydroelectric power. ASME also supports energy-efficient building and transportation technologies, as well as transmission and distribution infrastructure sufficient to satisfy demand under reasonably foreseeable contingencies. Only such a portfolio will allow the United States to maintain its quality of life while addressing future environmental and security challenges. Sustained growth in the energy systems on which the United States depends will also require stability in licensing and permitting processes not only for power generating stations but also for transmission and transportation systems.

FOSSIL ENERGY

The fiscal year 2013 budget request of $650.7 million for fossil energy represents a $86.3 million, or 15.3 percent, increase compared to the fiscal year 2012 appropriation. Fossil Energy (FE) research and development (R&D) would rise by 21.3 percent, or $73.8 million to $420.6 million. After 3 years of substantial budget cuts for FE, the EnComm is pleased to see that the administration is seeking to finally build upon the $3.4 billion that was devoted to FE R&D as part of the American Recovery and Reinvestment Act (ARRA).

After proposing the elimination of funding for Natural Gas Technologies in last year's budget request, this year the administration has requested a $2 million, or 13.4 percent increase for the program that would bring it to $17 million in fiscal year 2013. Unconventional Fossil Energy Technologies would again be targeted for elimination by the administration in fiscal year 2013, after receiving less than $5 million in funding for fiscal year 2012, and no funding in fiscal year 2011. The United States has access to significant unconventional gas resources with the potential to provide abundant, affordable, clean low-carbon energy source for years to come. Prior FE R&D has contributed to making this possible. However, this potential will not be realized unless this resource can be produced reliably, economically, safely, and with minimal environmental impact. Accomplishing this task and keeping the United States in the forefront of unconventional fossil energy technology will require an investment in basic research, technology development, and investments in advances in low-impact environmental technologies that will not be undertaken by industry in the current economic climate. The budget for these efforts should be maintained at least at the fiscal year 2010 level.

The EnComm encourages a restoration of funding for coal research programs to at least the levels appropriated for fiscal year 2010. The EnComm is very disturbed

by the lack of research in basic coal combustion and in research that is needed to support the next generation of coal-fired plants. The use of coal today and in the future is vital to providing for a sustainable energy future. The current funding levels significantly hinder the ability to keep the United States in the forefront of coal technology. Coal is and will remain a critical resource for our Nation and its economy; and we must continue to invest in technological advancements that will reduce environmental impacts for this energy. The use of more efficient processes for coal combustion, such as advanced integrated gasification combined cycle (IGCC) technology, combined with carbon sequestration will allow the United States to utilize its coal resources in a more environmentally sound and cost-effective manner. We encourage strong and consistent funding for these programs now and in future years.

ADVANCED RESEARCH PROJECTS AGENCY-ENERGY

The EnComm supports the $325 million budget request for the Advanced Research Projects Agency-Energy (ARPA–E), a $50 million or 27.5 percent increase over the fiscal year 2012 appropriated amount. ARPA–E received its first funding as part of ARRA, but has stood out quickly among its fellow DOE programs. ARPA–E represents a significant opportunity for the United States to cultivate technological breakthroughs related to energy sources, and uses. A steady commitment to ARPA–E has begun to encourage new energy technology innovation, and the EnComm believes that this is a worthwhile endeavor for the DOE as we seek to accomplish technological breakthroughs in energy technology research.

NUCLEAR ENERGY

The EnComm is discouraged to see a 10.3 percent, or $88.2 million reduction in the fiscal year 2013 DOE Office of Nuclear Energy budget request. Total funding for fiscal year 2013 would fall to $770 million. The EnComm remains convinced that nuclear energy will hold an important role in the Nation's energy future, and that programs like Reactor Concepts, and Fuel Cycle R&D need sustained funding to aid the Nation's transition to a low-carbon energy future. The current proposed lack of funding may adversely impact the ability of the current U.S. fleet to continue to operate past its 60-year life. The loss of funding may also contribute to the loss of the U.S. nuclear technology competitive edge to overseas concerns. The Energy Committee remains interested in how the proposed Reactor Concepts RD&D program distinguishes itself from the traditional R&D program under the Office of Nuclear Energy. The administration's invocation of an "all-of-the-above" energy strategy at this year's State of the Union Address should be reflected in this budget request. President Obama has again proposed the creation of a national "clean energy standard" of 80 percent by 2035 the EnComm believes very strongly that sustained increases in nuclear power research are justified in light of this goal.

ENERGY EFFICIENCY AND RENEWABLE ENERGY

The Office of Energy Efficiency and Renewable Energy (EERE) manages America's investments in research, development, and deployment of DOE's diverse energy efficiency and renewable energy applied science portfolio. The fiscal year 2013 request of $2.37 billion, which is a $527 million, or 29.1 percent increase over the fiscal year 2012 appropriated amount of $1.81 billion, demonstrates that the administration would like to restore EERE to pre-Budget Act levels (Public Law 112–25). Most of the key EERE programs, including Biomass, Solar, Wind, Geothermal, Building Technologies, Vehicle Technologies, and Advanced Manufacturing technologies, would receive substantial increases in funding to support the growth of renewable energy and energy efficiency. The EnComm is particularly pleased to see large increases for both the Advanced Manufacturing program ($290 million, or a 150.9 percent increase), formerly known as the Industrial Technologies Program (ITP), as well as the Building Technologies Program ($310 million, or a 41.4 percent increase).

The EnComm believes that the development of transportation fuel systems that are not petroleum-based is a critical part of our future national energy policy. The fiscal year 2013 budget for biomass and bio-refinery systems R&D is slated to receive a $70.7 million increase to $270 million for fiscal year 2013, 35.5 percent above the fiscal year 2012 appropriated amount. We are also pleased to see the $91 million, or 27.7 percent increase in the effort related to vehicle technologies emphasizing plug-in hybrid electric vehicles. However, the EnComm is concerned about the current level of mandated use of ethanol-based fuels.

The integration of all cost-effective electric generating technologies into the operation of the electricity distribution system is critical to economic operation of the

national electric grid. The EnComm believes that R&D related to the integration of the electric grid and its control as a truly national system is imperative for the growth of effective and economic energy generation technologies, and we encourage full funding for such research.

SCIENCE

The mission of the Office of Science (SC) is the delivery of scientific discoveries and major scientific user facilities and tools to transform our understanding of nature and to advance the energy, economic, and national security of the United States.

During these difficult budget times, the EnComm is pleased with the request for the Office of Science. The fiscal year 2013 budget proposal of $5 billion is an increase of $118 million, or 2.4 percent, from the fiscal year 2012 appropriation. As successive budget cycles come and go, the Nation seems to be getting further away from the funding trajectory mandated in the "America COMPETES Reauthorization Act of 2007" (Public Law 111–358). Science programs in high-energy physics, fusion energy sciences, biological and environmental research, basic energy sciences, and advanced scientific computing, serve, in some small way, every student in the country. These funds support not only research at the DOE laboratories, but also the work at a large number of universities and colleges. We believe that basic energy research will also improve U.S. energy security over the long term, through its support for R&D on cellulosic ethanol and other next-generation biofuels, advanced battery and energy storage systems, and fusion. Fusion Energy Sciences, High Energy Physics, and Nuclear Physics would receive decreases under this budget, with specific cuts to domestic fusion in favor of honoring the Nation's commitments to International Thermonuclear Experimental Reactor (ITER). The EnComm respects the Office of Science's goals related to microbiological sciences, computer science, and basic energy sciences but urges a restoration of funding for these reduced programs at fiscal year 2011 levels. The Energy Committee supports the budget request for the Office of Science in the amount of $5 billion.

OTHER DEPARTMENT OF ENERGY PROGRAMS

DOE is also very active in areas outside of R&D. The environmental remediation program that funds the decommissioning and decontamination of old DOE facilities is one such research area. The EnComm questions the advisability of flat funding for the Environmental Management program. The Yucca Mountain (YM) Waste Repository is a critical part of the future of nuclear energy and the use of uranium as a resource for energy usage in the present and foreseeable future. The EnComm is concerned that the cancellation of the YM repository program will result in a difficult, and more costly, search for a new repository that will likely encounter similar obstacles. DOE and the Congress should honor their commitments with regard to disposal of Spent Nuclear Fuel. The EnComm has read the Blue Ribbon Commission (BRC) on America's Nuclear Future report and will be closely monitoring any efforts in the Congress toward implementing the BRC's recommendations. The coming resurgence in the commercial nuclear arena is likely to deplete the trained professionals available for this program as engineers choose to move to the more stable commercial environment. The Congress should appropriate the funds to ensure that this work is accomplished in an expeditious manner.

CONCLUSION

Members of the EnComm consider the issues related to energy to be one of the most important issues facing our Nation. There is an urgent need for a strong and coherent energy policy. The EnComm is concerned that without a National Energy Policy the proposed and ongoing research will not be utilized to its full potential. We applaud the administration and the Congress for their understanding of the important role that scientific and engineering breakthroughs will play in meeting our energy challenges. In order to promote such innovation, strong support for energy research will be necessary across a broad range of technology options. DOE research can play a critical role in allowing the United States to use our current resources more effectively and to create more advanced energy technologies.

Thank you for the opportunity to offer testimony regarding both the R&D and other parts of the proposed budget for the DOE. The EnComm is pleased to respond to requests for additional information or perspectives on other aspects of our Nation's energy programs.

PREPARED STATEMENT OF APS TECHNOLOGY, INC.[1]

Madam Chairwoman and honorable Senators: Seven years ago, I submitted testimony[2] regarding proposed cuts to the Department of Energy (DOE) budget for oil and gas exploration research. Much has happened since 2005, all of which reinforces the need for such funding. I wish to address, in particular, the cuts to the National Energy Technology Laboratories (NETL).

I wish to make perfectly clear that my company, APS Technology, Inc., has benefited from these programs. We have completed two cost-sharing research contracts[3] [4] from the NETL, one Small Business Innovation Research (SBIR)[5] and one Small Business Technology Transfer (STTR)[6] grant. This support has been critical to the growth of APS and its introduction of new products for the industry.

I will not repeat the general justifications that you know so well—the necessity of our striving toward energy independence or near-independence; the importance of new technologies to reaching this goal, while protecting the environment, et cetera. While these are clearly important considerations, I would rather focus on three particular aspects from my personal experience:

—an outstanding success story;
—the changes in the business environment for oil and gas exploration; and
—some reasons that DOE support for oil and gas research and development is more important today than ever.

A SUCCESS STORY—TELECO OILFIELD SERVICES INC.

In his State of the Union Address,[7] President Obama reminded us that "it was public research dollars, over the course of 30 years, that helped develop the technologies to extract all this natural gas out of shale rock—reminding us that government support is critical in helping businesses get new energy ideas off the ground." One of these key enabling technologies was measurements-while-drilling (MWD) and the leader in MWD was my former company, Teleco Oilfield Services Inc.

In 1972, I began this new venture with the support of my then employer, Raymond Engineering[8] and the European oil company, SNPA.[9] The sole purpose of this new company was to develop and commercialize this new MWD technology. Even then, before there was a commercial tool, the industry recognized MWD as a transformative technology. By transmitting data to the surface in real time from the bottom of a well as it was being drilled, it would open the door to directional and horizontal drilling, real-time analysis of the oil and gas content of a well, steering the well within a pay zone, things unheard of then that are now standard operating procedure in oilfields around the world.

In 1978, dozens of companies were trying to develop these systems,[10] including large corporations within the oil industry and without. Most, however, were unsuccessfully trying to adapt existing wireline technology to the much more severe environment within a well during drilling. Teleco took the opposite approach;[11] it adapted the proven reliable military and space technology of Raymond Engineering and applied it to the new environment in a effort to attain the reliability needed for such service.

In 1975, after several years of intense and expensive self-funded development, Teleco was ready to build and field test its first prototype tools. The combination of their complexity and the requirement that they work in an extreme environment made this a prohibitive task. The oil companies were unwilling to invest in this technology without a successful field test. It was at this time that the company applied for, and received, $2 million in development funding from the DOE. With these funds, the field testing could proceed and proved successful.

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[1] 9 Laser Lane, Wallingford, Connecticut 06492. http://aps-tech.com/.

[2] Testimony to the House Committee on Appropriations Subcommittee on Energy and Water Development, submitted March 6, 2005.

[3] DE–FC26–02NT41664, "Drilling Vibration Monitoring and Control System".

[4] DE–FC26–04NT15501, "Novel High-Speed Drilling Motor for Oil Exploration & Production".

[5] DE–FG02–02ER83368, "Rotary Steerable Motor System for Deep Gas Drilling".

[6] DE–AC26–98FT40481, "Downhole Fluid Analyzer".

[7] http://www.whitehouse.gov/photos-and-video/video/2012/01/25/2012-state-union-address-enhanced-version#transcript.

[8] Now a part of Kaman Corporation.

[9] Societé Nationale des Pétrôles d'Aquitaine, now a part of Total.

[10] *cf.*, "MWD: State of the Art", series of articles in the *Oil & Gas Journal*, 1978.

At this point, six major oil companies [12] provided an additional $0.9 million funding in return for future repayment through the company's sales. These funds allowed the commercial launch of MWD in 1978.

As anticipated, the commercial introduction of MWD by Teleco revolutionized oil and gas exploration, first primarily offshore, but now on land as well. What was the role of the DOE in this success? MWD would have certainly been developed in time, but it took more than 2 years for other companies to enter the market. The Teleco system remained the leader in reliability over its entire existence. The support of the DOE was critical to making the leap from a laboratory demonstration to fully commercial systems in use worldwide. Thus, the small investment by the DOE led directly to the development of a company and an industry that served to improve the efficiency and safety of oil and gas exploration, led to many advances that help restrain the price of oil including such innovations as horizontal drilling, and created thousands of jobs in the United States.

CHANGES IN THE OIL AND GAS INDUSTRY OVER THE PAST FOUR DECADES

In the past four decades, the oil and gas industry has undergone dramatic changes. In the 1970s the major production companies were the principal sources of new technology for the industry. Exxon, Mobil, Texaco, and ARCO, to name a few, maintained research facilities staffed by the most experienced experts in their fields. These companies developed many of the key innovations in the drilling and well logging industry despite their recognition that, as commodity producers, they were neither equipped to market, nor particularly interested in, technology per se. This was the province of the oil service companies, to whom the producers licensed their use, often giving nonexclusive, royalty-free licenses to any company that requested them.

In the ensuing decades, the industry has consolidated. For example, all of the companies mentioned above have either merged or been acquired since then, also consolidating their research programs. In the volatile oil and gas industry, it difficult to justify to shareholders investments in long-term programs that will not produce any direct revenues or competitive advantage. Thus, companies have striven to "right size" their organizations, often at the expense of research.

A similar contraction has taken place in the oilfield services business. New technologies were once transferred from the producers, developed by the major service companies, or introduced by small, specialized companies (such as Numar [13] or Landmark Graphics [14]). Many of the researchers laid off in the consolidation of the producers' research labs found their way to service companies. The service companies also acquired many of the smaller companies, such as those listed above. Now, after significant consolidation and downsizing on the part of the service companies, and under the continuous, short-term scrutiny of the market, even they are cutting the costs associated with long-term development.

To cite one example, Schlumberger has closed its world-renowned Schlumberger-Doll Research Center in Ridgefield, Connecticut, and relocated to Cambridge, Massachusetts. They have transferred much of the work previously done by industry experts to university professors, research associates, and students. The service companies are also outsourcing many high-risk projects to small companies such as APS.

In this environment, the growth and success of a Teleco would be impossible. The large companies have become more risk-averse and oriented toward current revenues. Small companies lack the resources to pursue high-risk, long-term developments. The government, through the DOE, is the backer of last resort for these efforts.

CURRENT NECESSITY FOR DEPARTMENT OF ENERGY SUPPORT

The U.S. oil and gas province is quite mature. Production of oil peaked in the 1970s and gas production is nearly at its peak. To produce additional reserves, technical progress is needed in two areas:

—drilling safely in deeper waters offshore requires new methods for dealing with the increased temperatures and pressures in the formations; and

—producing oil and gas from the prolific shale deposits we possess requires sophisticated horizontal drilling [5] and monitoring [3] equipment.

Some of the technology for these areas is being supported by the Research Partnership to Secure Energy for America (RPSEA), of which we are a member. These programs, however, tend to be on a larger scale and less suited for small businesses.

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[12] Exxon, Shell, Chevron, Conoco, Amoco, and Placid.

[13] Now a part of Halliburton Corp, see: http://www.halliburton.com/news/archive/1997/corpnws__093097.jsp.

[14] Now a subsidiary of Halliburton Corp, see: http://www.lgc.com.

DOE R&D support, through NETL, which requires cost-sharing by the applicant and outside sources, is an ideal model for a stimulant to small business and technological growth. To cite one example, consider our Drilling Vibration Monitor and Control System,[3] currently entering commercial service. In 2002, NETL launched the Deep Trek initiative, aimed at developing new technologies to reduce the cost of deep gas drilling. After review by outside experts of both a pre-application and application, APS was granted a Cooperative Agreement to develop this new tool, with the DOE paying 75 percent of the first phase.

During this period we designed and modeled this tool, which senses the vibration of the bit and drillstring, and continually adjusts the stiffness of an active vibration damper located above the bit. As a result, the bit does not bounce off bottom, and applies the optimal force to enhance the rate of drilling.

Phase II drilling tests have shown[15] that use of this tool can increase the drilling speed by 10–50 percent, and significantly extend the life of drill bits and other downhole components. None of this development would have been possible without DOE support. APS was not in a position to fund it; the major service companies were not interested until there was an indication of value to the end user and the production companies needed something more concrete before investing in the technology.

Now, with the help of these tests made possible by DOE support, there is considerable customer interest. This product should lead to major improvements in efficiency for the oil and gas drilling industry, and growth for our company. For example, APS has been recognized as one of the fastest-growing technology companies in Connecticut for the past 9 years. We are in the midst of a hiring boom and plan to increase our U.S. employees by 60 during 2012.

In summary, DOE research initiatives are essential to "prime the pump" of new technology development. This is even more important in these times of high fuel prices, "lean" corporations and increased dependence on foreign oil sources. I urge you, in the strongest possible terms, to maintain or increase the funding for these programs. Thank you.

PREPARED STATEMENT OF CARNEGIE MELLON UNIVERSITY

Madam Chairwoman, ranking member, and members of the subcommittee: My name is Timothy McNulty, and I am the Associate Vice President for Government Relations at Carnegie Mellon University. The great progress being made in America's pursuit of energy independence is a product of the synergy between the entrepreneurial strength of our energy sector and strategic research investments that have fundamentally changed the very nature of production. As our pursuit of energy independence gains momentum, it is critical to continue funding the programs that best foster this dynamic. A prime example of such a program is section 999, the Ultra-Deepwater and Natural Gas Supply Research and Development Program created by the Energy Policy Act (EPAct) of 2005.

The section 999 program supports the dynamic research of the Strategic Center for Natural Gas and Oil at the National Energy Technology Laboratory (NETL SCNGO), as well as a consortium of U.S. energy research universities, industry, and independent research organizations under the Research Partnership to Secure Energy for America (RPSEA). This approach ensures that the program engages partners from across the United States and fully utilizes the capabilities of the Nation's fossil energy lab, which has a long history of strong collaboration with industry and a proven track record of moving technology from discovery to commercialization. The RPSEA partnership brings the best of highly competitive research to bear on the fundamental industry challenges that the United States must address in order to realize the full potential of new energy sources safely and effectively.

At NETL, research is underway to address the central technological and basic scientific questions that will support continued expansion of shale production. These include novel techniques for water quality and treatment, research on well distribution and optimization, modeling to predict induced seismicity, and pre-competitive research on new end-use products and markets for natural gas.

This research program also benefits from a unique collaboration between the National Lab and five universities—Carnegie Mellon University, Penn State University, Virginia Tech University, the University of Pittsburgh, and West Virginia University. Working with the Lab, these institutions comprise the NETL Regional University Alliance (NETL RUA), a "virtual" laboratory that taps leading capabilities

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[15] M.E. Wassell *et al*. "Active vibration damper improves performance and reduces drilling costs", World Oil, September 2008.

in hydrology, water systems, drilling technologies, and risk assessment from across the region.

The NETL research builds upon recent breakthroughs such as the development of potential new nanoparticles supporting enhanced oil recovery and new ways to model and image multiphase, multifluid flow in shale core. Other major research accomplishments include the development of remote sensing techniques to monitor shallow groundwater salinity, the effective utilization of airborne magnetic surveys to detect the location of unknown wells in an active enhanced oil recovery well in the western United States, and the assemblage of a 3–D geologic framework for the Marcellus Shale using commercially available software.

In addition to aiding the pursuit of energy independence, the section 999 program is also vital to maintaining America's global leadership in energy-related technologies. As the discovery of shale sources continues across the world—on virtually every continent—one aspect of the energy race for the future will clearly be to develop the production-related technologies and expertise that will become a major source of export-related business and job growth.

The question is whether American companies, workers and communities will benefit from leading this development. By bringing together the best of American industry, university and national lab research on practical problem-solving and opportunity-seizing innovation, the section 999 program funding is vital to laying the foundation for American leadership in what will be a major export market of the next two decades.

In essence, the research NETL is leading as part of the section 999 program spans breakthroughs that both extend the boundaries of discovery and production and strive to ensure that this production is undertaken in an environmentally safe manner. This program is critical to advance productivity, to establish the foundation for scientifically based, environmentally sound extraction, and to catalyze new industries related to new energy extraction.

The Congress's support for restoring funding of section 999 in fiscal year 2012 was greatly appreciated and needed. It is enabling practical results that make a difference in both production and scientifically based environmental protection. Continued support of the section 999 program by restoring the full $50 million in funding for fiscal year 2013 is respectfully urged as an investment in emerging American energy innovation and continued progress toward environmentally safe energy independence.

Prepared Statement of the Coal Utilization Research Council

INTRODUCTION

This statement is submitted on behalf of the membership of the Coal Utilization Research Council (CURC), an organization of coal-using utilities, coal producers, equipment suppliers, universities and institutions of higher learning, and several State government entities interested and involved in the use of coal resources and the development of coal-based technologies (see www.coal.org). Members of CURC, together with the Electric Power Research Institute (EPRI), have developed a Technology Roadmap (Roadmap) that defines the research, development, and demonstration (RD&D) necessary to insure the enhanced utilization of coal in the United States. The recommendations for fiscal year 2013 appropriations discussed in this testimony are keyed directly to the 2012 update of the Roadmap.

COAL UTILIZATION RESEARCH COUNCIL FISCAL YEAR 2013 BUDGET RECOMMENDATION

The President has requested $241 million for the coal RD&D program in fiscal year 2013, which is $93 million below the fiscal year 2012 enacted level of $333 million. This fiscal year 2013 request is nearly 40 percent below the $389 million fiscal year 2011 appropriated levels. The budget request being made for Fossil Energy represents the only area in Department of Energy's (DOE) budget for which less funding is being requested than the prior year. CURC recommends that the fiscal year 2013 coal research and development (R&D) program be funded at $372 million (see chart below). Recommended increases in funding would be targeted to specific areas as well as new programs, all of which are keyed to the Roadmap (details below). This recommendation represents an increase of $131 million over the President's fiscal year 2013 request and $39 million above the funding level of $333 mil-

lion (exclusive of the National Energy Technology Laboratory (NETL) in-house R&D program) that the Congress provided in fiscal year 2012.[1]

IMPORTANCE OF COAL AND THE DEPARTMENT OF ENERGY FOSSIL ENERGY RESEARCH AND DEVELOPMENT PROGRAM

Coal is essential to the U.S. energy economy. In 2010, coal provided 21 percent of total U.S. energy consumption and 48 percent of U.S. electric power.[2] The U.S. Energy Information Administration (EIA) projects that coal will continue to provide nearly 40 percent of our Nation's electricity through 2035. Technology has enabled coal to address environmental and economic challenges in the past. The proven formula for success has been the collaborative, cost-sharing efforts of the Government and the private sector. This public and private sector partnership has provided great value to the taxpayer yielding a return of $13 for every $1 of Federal funding spent for coal RD&D.[3] The National Academies of Science estimated that between 1986 and 2000, the DOE Fossil Energy Program generated $7.4 billion in economic benefits to this country.[4] Today, 3 out of every 4 coal plants in United States are equipped with technologies that trace their origins to DOE's program, allowing coal use to increase by more than 63 percent in the United States over the last 30 years while the emissions of SO_2 and NO_X have decreased on the order of 70 percent.[5]

THE ROADMAP

The Roadmap represents a plan for developing technologies that convert coal to electricity and other useful forms of energy and manufacturing feedstocks. The Roadmap describes coal technology advancements that will achieve specific cost, performance, and environmental goals and in doing so, will benefit the Nation's environment, economy, and energy security. A significant conclusion of the Roadmap is that, with the combination of technology development and enhanced oil recovery (EOR), coal-based power plants designed and constructed in 2025 can provide electricity at a price competitive with natural gas and other fuels, and with 75 percent less CO_2 than today's new natural gas-based power plant. Other additional benefits of successfully implementing the Roadmap include aggressive reduction of traditional air pollutants and water use/discharge; and enhanced energy and economic security via production of low-cost power using the largest U.S. domestic energy resource. The key to successful technology development is:

—adequate public support;
—enhanced levels of funding targeted to specific technology areas; and
—a regulatory and public policy framework that supports coal use.

FUNDING NEEDS TO ACCOMPLISH THE ROADMAP

Below is a chart that outlines CURC's proposed funding recommendations compared to the fiscal year 2013 proposed budget for Fossil Energy R&D. These CURC recommendations are targeted to achieving the Roadmap goals by directing funds to specific programmatic activities, including new activities not currently funded by DOE.

Advanced Energy Systems

Advanced Combustion.—CURC recommends a total of $65 million for the Advanced Combustion program in fiscal year 2013 to develop technologies for advanced combustion platforms, including focused work on waste heat recovery and integration, advanced power cycles, and alternative process configurations. The Roadmap envisions a pathway for the integration of these advanced ultra supercritical (AUSC) materials technologies into new, highly efficient advanced coal systems. CURC recommends $10 million in fiscal year 2013 for DOE to build upon the successes of the AUSC program and to develop a roadmap that identifies a pathway for moving the AUSC materials work forward and support

[1] The CURC figures are exclusive of the NETL coal research and development (in-house R&D) program budget of $35 million. While an important program, this funding supports salaries for research conducted by NETL in-house and is not a cost-shared program with industry. The Roadmap identifies programs that are undertaken in partnership between industry and government, and therefore, CURC's recommendations are focused on the competitive programs funded in the coal RD&D program.

[2] Coal plays a similar role in the global energy economy. Between 2000 and 2010, coal accounted for nearly one-half the increase in global energy use, OECD/IEA 2011.

[3] Fossil Energy Research Benefits, Clean Coal Technology Program, USDOE/NETL.

[4] "Energy Research at DOE, Was it Worth It?", Energy Efficiency and Fossil Energy Research 1978 to 2000, National Academy of Sciences, 2001 Report, pg. 6.

[5] EIA Annual Energy Review 2010, EPA National Air Pollutant Emissions Trends: 1900–1998.

industry efforts in commercializing AUSC technologies. CURC also recommends $10 million for DOE to initiate a mercury control technology program to develop technologies to allow new combustion plants to meet the mercury emissions standard imposed by Environmental Protection Agency (EPA) on new plants.

Gasification.—CURC recommends $55 million in fiscal year 2013 to support dry feed system integration and scale up, advanced sensors work, simulation of fast ramp improvements, and refractory testing, as well as focus on the integration of ion transport membrane (ITM) technologies into the power generation process, which is important for overall cost reductions of gasification technologies.

Turbines.—CURC recommends $24 million for the turbine program in fiscal year 2013 to validate advanced hydrogen turbine technology and components in full turbine test stand demonstrations, and to expand the program to development of components compatible with ITM integration.

Cross-Cutting Research.—In addition to supporting university training and research and computational modeling through the National Risk Assessment Partnership (NRAP) and the Carbon Capture Simulation Initiative (CCSI), CURC recommends $12.4 million for DOE to initiate a water management program. The Roadmap defines a program to survey the industry's water management practices in order to model water use and management for a variety of coals, process steps and emission limits, and to develop technologies that reduce water withdrawal and consumption. CURC also recommends $16 million to fund research on breakthrough technologies. The Roadmap characterizes these technologies as "out-of-the-box" thinking, or fundamentally new approaches to solving coal's challenges.

Carbon Capture.—CURC believes that it is a wise public investment to determine how to cost-effectively capture and use/store CO_2 so that we do not eliminate any options for coal in the future, and sees a dual role for continued development of CO_2 capture technology. The first role is the benefit for meeting current and future climate mitigation regulations. States have adopted CO_2 regulatory requirements and on March 27, the EPA has proposed regulatory requirements for CO_2 emissions from new coal-fueled power plants which would require the application of carbon controls. The second role is driven by energy security benefits. If the price of captured CO_2 can be reduced through RD&D, the CO_2 can be used to augment production of domestic crude oil through EOR, thereby increasing the potential to domestically produce trillions of dollars of oil over the next several decades, which would reduce reliance on imported oil and improve the U.S. balance of trade.

Post-Combustion.—For both new and existing power plants, postcombustion capture technology must be made more efficient and cost-effective by reducing parasitic power and capital cost requirements. CURC recommends $60 million in fiscal year 2013 to develop novel capture process improvements that can support coal power plant retrofits and natural gas combined cycle (NGCC) retrofits equally.

Pre-Combustion.—CO_2 capture for gasification is focused on improved capture processes in order to reduce costs. CURC recommends $17.4 million for pre-combustion capture work in fiscal year 2013 specifically to pilot new shift catalysts and reactor designs, accelerate hydrogen membrane pilot projects, address CO_2 slurry feed integration, evaluate alternates to warm gas capture, and acquire data and design guidance from current demonstrations.

Carbon Storage.—CURC supports the Regional Carbon Sequestration Partnerships (RCSP), and recommends a follow-on program that builds upon the success of the RCSPs. In our judgment this follow-on program will support the development of a commercial industry necessary for deployment of carbon storage. CURC recommends $40 million in fiscal year 2013 to initiate a "carbon storage site certification" program intended to characterize and qualify 5 regionally diverse sites that can each accept 50 million tons of CO_2 at a rate of 5 million tons per year.

LOAN GUARANTEE PROGRAM

Demonstration of first-generation technology, as reflected in the projects currently supported by the DOE Clean Coal Power Initiative (CCPI) program and the DOE Loan Guarantee program, are critically important in proving the integration of these technologies. The success of these projects is necessary to support the development of second-generation technologies contemplated in the Roadmap. CURC supports the $8 billion authorization for DOE to provide loan guarantees to selected fossil energy projects.

DEPARTMENT OF ENERGY PRACTICE OF MORTGAGING

The practice of partial funding of multiyear projects contingent on future appropriations has been a fundamental aspect of DOE's research program for many years and is embodied in DOE's Financial Assistance Regulations. Mortgaging provides DOE the flexibility to fund several projects, to discontinue projects that are not meeting objectives and redirect funds to other meritorious projects that are successfully achieving development targets. Any restriction on the DOE practice of mortgaging will reduce the portfolio of technologies emerging from the program and create public and private investment risks. CURC recommends that the current approach to funding projects be maintained at DOE.

[In thousands of dollars]

Carbon Capture and Sequestration and Power Systems	Enacted		Request	CURC
	Fiscal year 2011	Fiscal year 2012	Fiscal year 2013	Fiscal year 2013
Carbon capture:				
Postcombustion	41,299	55,495	49,035	60,000
Pre-combustion	17,404	13,403	11,403	17,600
Carbon storage:				
Regional Carbon Sequestration Partnerships	77,160	83,190	66,980	56,600
Geological storage	24,946	14,978	11,255	.....
MVAA	8,122	6,738	6,738	.....
Carbon Use/Reuse	967	778	778	.....
Sequestration Science focus area	9,717	9,726	9,726	.....
Carbon storage site certification [1]	.....	.....	.....	40,000
Advanced Compressor [1]	.....	.....	.....	960
Advanced Energy Systems:				
Advanced Combustion Research, including:	30,724	15,942	10,699	65,000
—Advanced Ultra SuperCritical (High Temperature) materials [1]	.....	.....	.....	10,000
—Mercury capture for new plants [1]	.....	.....	.....	10,000
Gasification Research, including:	47,614	39,000	31,905	55,200
—Air Separation and Oxygen Production	.....	.....	.....	4,800
Hydrogen turbines	30,106	15,000	12,589	24,800
Hydrogen from coal	11,661	.....	.....	.....
Coal and coal biomass to liquids	.....	5,000	.....	.....
Solid oxide fuel cell	48,522	25,000	.....	.....
Cross-cutting research:				
Plant optimization (sensors, controls, NC, materials)	7,789	13,663	7,000	.....
Coal utilization science:				
—Computational system dynamics—National Risk Assessment Partnership	12,462	11,800	7,800	10,000
—Computational Energy science—Carbon Capture Simulation Initiative	11,844	13,371	9,400	10,000
Energy Analyses	4,837	4,950	950	.....
University training and research	3,164	4,000	3,250	4,000
International activities	1,350	1,350	1,350	.....
Water management [1]	.....	.....	.....	12,400
Breakthrough technology research [1]	.....	.....	.....	16,000
Coal R&D subtotal without in-house R&D	389,688	333,384	240,858	371,960
National Energy Technology Laboratory Coal Research and Development (in-house R&D)	.....	35,011	35,011	35,011
Coal R&D subtotal with in-house R&D	389,688	368,395	275,869	406,971

[1] Program is CURC–EPRI Roadmap Program and does not have a comparable program in the DOE budget.

PREPARED STATEMENT OF THE COALITION OF NORTHEASTERN GOVERNORS

The Coalition of Northeastern Governors (CONEG) is pleased to share with the subcommittee on Energy and Water Development this testimony on fiscal year 2013 appropriations for the Department of Energy's energy efficiency programs, the Energy Information Administration, and the Northeast Home Heating Oil Reserve. The

governors request fiscal year 2013 funding of no less than the fiscal year 2012 levels for the following Energy Efficiency and Renewable Energy Programs: $50 million for the State Energy Program and $220 million for the Building Technologies Program. The governors also ask that you provide at least historic funding levels for the Weatherization Assistance Program. In addition, the governors request at least $105 million for the Energy Information Administration, and sufficient funding for maintenance and operation of the Northeast Home Heating Oil Reserve.

We recognize that this year the subcommittee faces a very difficult set of choices in this environment of severe fiscal constraints. Continued, adequate Federal funding for these energy programs is a vital step in helping businesses and households across the Nation manage their energy costs, and moving the Nation toward increased energy independence.

STATE ENERGY PROGRAM

The CONEG governors request at least $50 million for the State Energy Program (SEP) in fiscal year 2013 with these funds provided as base SEP formula funding. This level of base funding is critical for the SEP to continue the successful State-Federal-private sector partnerships for many energy efficiency and conservation programs. The base SEP program is particularly important to smaller States since it allows them to dramatically enhance program delivery and leverage non-Federal resources with Federal funds.

The 56 State and territory energy offices use SEP funds, along with leveraged State and private sector funds, to implement vital energy efficiency, renewable energy, and alternative energy demonstration in energy end-use sectors such as buildings, industry, agriculture, transportation, and power generation. In addition, States use SEP funds to prepare for natural disasters and increase the security of critical energy infrastructure.

States use SEP funds to carry out a wide variety of activities most appropriate for the energy profiles of a State. These may include energy efficiency retrofits and installation of solar systems on State buildings that save taxpayers thousands of dollars in energy costs and reduce carbon emissions. These funds also support public outreach and education to local residents, small businesses, farmers, and others to make them aware of opportunities to reduce energy consumption and energy bills. Using SEP funds, States also work with the private sector to showcase new clean technologies and to invest in renewable energy projects.

The SEP program yields proven energy and economic benefits. The most recent Oak Ridge National Laboratory cost-benefit analysis of the program found that every $1 in SEP funding yields $7.22 in annual energy cost savings, $10.71 in leveraged funding, and annual energy savings of 1.03 million source BTUs. The Department of Energy (DOE) estimates that, based on recent appropriations levels, the SEP program results in an annual energy cost savings of $300 million.

WEATHERIZATION ASSISTANCE PROGRAM

The CONEG governors request at least historic funding levels in fiscal year 2013 for the Weatherization Assistance Program (WAP). Weatherization is an immediate and effective tool to alleviate the energy burden of low-income households by making their homes more energy efficient. The fiscal year 2010 funding level of $210 million is the minimum level needed to ensure that States across the country can continue the program's successful efforts to reduce the costs of home energy and increase the safety of these vulnerable households.

Low-income households pay a disproportionate share of their income on energy bills, often spending more than 19 percent of their annual income on home energy compared to just 4 percent for all other households. Through a State-managed network of more than 900 local weatherization providers, WAP makes cost-effective improvements to about 100,000 low-income households annually, permanently reducing energy costs for these vulnerable families.

Cost-effective weatherization measures are tailored to specific homes and climates. Many of these measures are inexpensive yet effective services, such as installing insulation, sealing ducts, and tuning and repairing heating and cooling systems. The program uses the most advanced technologies and diagnostic equipment to develop a comprehensive cost-effective strategy to reduce household energy use. In fall 2011, DOE estimated that these measures save families an average of $437 annually in heating and cooling costs alone.

In addition to the considerable energy benefits, weatherization services increase the health and safety of low-income homes by detecting carbon monoxide and gas leaks in tested equipment, replacing unsafe equipment, and checking for moisture damage. The program also fosters significant investments in local economies by cre-

ating jobs, offering professional training, and making housing more affordable in communities across the Nation. For every $1 invested, WAP returns $2.51 in benefits, including $1.80 in energy savings, according to DOE.

BUILDING TECHNOLOGIES PROGRAM

The CONEG governors request at least $220 million for the Building Technologies Program (BTP) in fiscal year 2013. According to DOE, the buildings sector consumes more energy than any other sector in the United States including transportation and industry. The potential energy savings are great. Through partnerships with State and local governments, national laboratories and universities, BTP supports research, demonstration and deployment of technologies and practices to make new and existing buildings less energy intensive. These RD&D partnership activities are a vital complement to other public policy incentives that encourage private sector investments in smart energy use.

In the millions of existing buildings, BTP works to decrease energy consumption through retrofits or replacements that decrease energy use and improve safety and comfort. In new construction, BTP works to make improvements in technologies and techniques for the design, construction and operation of more energy efficient, productive, and affordable buildings.

ENERGY INFORMATION ADMINISTRATION

The governors request at least $105 million in fiscal year 2013 funding for the Energy Information Administration (EIA). As the independent statistical arm of the DOE, EIA is a leader is providing reliable independent information, analyses and forecasts on U.S. energy production, demand, consumption, imports and prices. The information and analyses provided by EIA are vital to State and Federal policymakers as they develop critical energy and environmental strategies. Consumers rely on EIA's widely-available information and forecasts to make a variety of energy and household-related decisions.

Increasingly complex global energy factors have greatly increased EIA's workload. Continued adequate appropriations in fiscal year 2013 will ensure that EIA can provide the most accurate reliable information at the level of detail needed by policymakers and consumers to make informed decisions.

NORTHEAST HOME HEATING OIL RESERVE

The CONEG governors request sufficient fiscal year 2013 funding for maintenance and operation of the Northeast Home Heating Oil Reserve. The Northeast is uniquely dependent on home heating oil. More than 25 percent of northeast homes use fuel oil for heating. These homes account for more than 80 percent of residential heating oil use nationwide, making the region particularly vulnerable to the effects of supply disruptions and price volatility.

In the event of a supply disruption, the Reserve provides a buffer that allows additional time for supplies to reach the region. Reserve locations are strategically placed throughout the region to respond rapidly and efficiently to any emergency supply interruption.

SUMMARY

In summary, the CONEG governors request that the subcommittee provide at least $50 million for the State Energy Program for the base SEP formula program, $220 million for the Building Technologies Program, at least historic funding levels for the Weatherization Assistance Program, at least $105 million for the Energy Information Administration, and sufficient funding for maintenance and operation of the Northeast Home Heating Oil Reserve.

PREPARED STATEMENT OF CUMMINS INC.

OFFICE OF ENERGY EFFICIENCY AND RENEWABLE ENERGY

Office of Vehicle Technologies

Advanced Combustion Engine Research and Development

Advanced Technology Powertrain—Light Duty.—Increase the administration's request of $55.2 million by $5 million to bring the program total to $60.2 million in fiscal year 2013. $58.02 million was appropriated in fiscal year 2012. The Advanced Combustion Engine research and development (R&D) program includes important research areas for diesel and gasoline engines to develop more energy efficient and

environmentally friendly technologies. The Department of Energy (DOE) has launched the "Supertruck" Initiative which includes the Advanced Technology Powertrain—Light Duty (ATP–LD) program. The goals of ATP–LD program are to deliver a standard light-duty pickup truck which can achieve at least 40 percent improvement in fuel economy over the state-of-the-art gasoline engines while meeting Tier 2 Bin 2 tailpipe emissions (the same emissions standard required for gasoline powered vehicles). Diesel engine R&D is critically important to improve energy-efficiency and environmentally friendly technologies. This is accomplished through a better understanding of combustion processes which enable the use of significantly less petroleum while meeting or exceeding customer value. When this technology has fully penetrated the market, 40-percent fuel economy enhancement in light-duty trucks and SUVs would reduce U.S. petroleum consumption by more than 1.5 million oil barrels/day and greenhouse gas (GHG) emissions by more than 0.5 million metric tons/day with energy security and trade balance benefits. Innovative high-risk technologies, such as low-temperature combustion, variable-valve actuation, closed-loop selective catalytic reduction (SCR) controls, lightweight structural and advanced materials are planned. The funding increase will help address significant technology hurdles in the areas of on-board diagnostics, parasitic loss reduction, aftertreatment requirements, minimizing fuel penalty due to the aftertreatment, and the use of renewable fuels. Without the increased funding, research activities would be significantly limited.

Advanced Manufacturing Office (Formerly Industrial Technologies Program)

Next Generation Manufacturing Processes

Combined Heat and Power Generation—Advanced Reciprocating Engine Systems.—Support administration's request of $198.7 million for fiscal year 2013. $62.1 million was appropriated in fiscal year 2012. Next Generation Manufacturing Processes are cross-cutting activities which focus on energy efficient processes and reduce energy intensity of manufactured products. The Combined Heat and Power Generation initiative within the Advanced Manufacturing Office includes the important Advanced Reciprocating Engine Systems (ARES) program, a component of distributed generation. The objective of the ARES program is to develop high efficiency, low emissions and cost-effective technologies for stationary engine systems (500–6500 kW) that can use natural gas or domestic renewable resources such as "opportunity" fuels. Natural gas-fueled reciprocating engine power plants are preferred for reliability, low-operating costs, and point-of-use power generation. Opportunity fuels can be renewable fuels (e.g., landfill gases) which exhibit low BTU, lower methane number and varying gas composition. Their use reduces the dependence on high-quality pipe-line natural gas. The technologies goals sponsored by the ARES program are being readied to demonstrate 47-percent engine efficiency (20–40-percent increase from the baseline), higher power densities than current products, with an expected reduction in life-cycle costs and GHG emissions. The administration's fiscal year 2013 budget will support advanced technological challenges including higher-base engine efficiency, combustion enhancements with low BTU and methane gases, nitrogen oxides (NO_X) reduction, advanced sensors and controls, hardware durability and lower life-cycle costs. The development of distributed power generation supports lower life-cycle energy consumption of manufactured products, national energy security needs, improves protection of critical infrastructure and decreases dependence on the national electrical grid system through point-of-use energy production.

Combined Heat and Power Generation—330kw Packaged Combined Heat and Power System.—Support administration's request of $198.7 million for fiscal year 2013. $62.1 million was appropriated in fiscal year 2012. Next Generation Manufacturing Processes are cross-cutting activities which focus on energy-efficient processes and reduce the energy intensity of manufactured products. The 330kw Packaged CHP System project entails the development of a flexible CHP system that can be deployed to commercial and light industrial (100–500kw) applications at a lower total cost of ownership than current CHP solutions. This project will result in a CHP system that is easy to use and inexpensive to install, offering world class customer support while providing a high efficiency internal combustion engine for a CHP system of this size. CHP systems offer higher system energy-efficiency, lower emissions and overall economic benefits. Modern engine designs operate at significantly lower regulated exhaust emissions. Combined heat and power systems use internal combustion engines to produce electricity at point of use and recover waste heat for heating or cooling purposes. Energy intensity of the CHP customer can be reduced in excess of 35 percent due primarily to more efficient electrical generation and recovered waste heat. The fiscal year 2013 budget will support prototype CHP system development and field testing.

OFFICE OF SCIENCE

Basic Energy Sciences

Fundamental Interactions Research

Predictive Simulation for Internal Combustion Engines.—Support administration's request of $71.5 million for fiscal year 2013. $67.5 million was appropriated in fiscal year 2012. Fundamental Interactions Research builds the fundamental science basis essential for technological advances in diverse range of energy processes. In support of the clean energy agenda, Predictive Simulation for Internal Combustion Engines (PreSICE) program is a simulation and diagnostics study addressing the interplay between combustion chemistry and turbulent flows in combustion systems. This will lead to the development of robust engineering design tools for computational analysis capability. This large-scale computational simulation initiative is targeted at achieving cost-effective means for even greater fuel efficiency. Models will be developed for advanced chemical kinetics, computational fluid dynamics (CFD) and large eddy simulations. These models will simulate advanced combustion regimes, transient events and cycle-to-cycle variability. Development of better solver algorithms will minimize cycle-to-cycle variations and more rapid optimization of overall engine design. The administration's fiscal year 2013 budget will accelerate the predictive simulation of internal combustion engines.

PREPARED STATEMENT OF THE DIESEL TECHNOLOGY FORUM

The Diesel Technology Forum (DTF) is a not-for-profit organization representing diesel engine and equipment makers, fuel suppliers, and emissions control technology companies. We appreciate the opportunity to submit outside witness testimony regarding certain aspects of the fiscal year 2013 proposed budget of the Department of Energy (DOE), particularly its Vehicle Technologies Program (VTP) and its various budget activities for commercial vehicles such as Advanced Combustion Engine R&D (ACE R&D), batteries and electric drive technologies, vehicle and systems simulation, fuels technology, and materials research.

Diesel engines play a key role in the global economy. A 2011 economic study commissioned by the DTF and completed by Aspen Environmental Group reported that more than 80 percent of all freight is moved throughout the United States by diesel trucks, ships, trains, and intermodal systems. Worldwide, 94 percent of all global trade is powered by diesel engines and equipment. In addition, the diesel industry contributes more than $480 billion annually to the U.S. economy and provides more than 1.25 million jobs.

Medium- and heavy-duty trucks—the majority of which are powered by diesel engines—consume roughly one-fifth of transportation fuels in the United States. Petroleum consumption for heavy-duty vehicles is expected to increase 40 percent between 2010 and 2035. Increasing the efficiency of these vehicles can lower the costs of land-based freight and the industries that depend on it, while greatly reducing the Nation's dependence on imported oil.

Last year, we expressed our concern with this subcommittee over the Department's fiscal year 2012 budget request that would have terminated or delayed commitments under the SuperTruck program, which focuses on improving heavy-duty truck efficiency. Today, we commend the Department for moving forward to meet commitments to prior awards within the SuperTruck program. We are pleased that the fiscal year 2013 Energy Efficiency and Renewable Energy (EERE) budget request proposes to retain the contracted investments in several key budget activity areas that impact heavy-duty diesel engines, commercial vehicles, and truck efficiency programs.

Because of Well-Established Future Need, Proven Past Performance, and Extended Societal Benefits, Funding for VTPs Including ACE R&D, Fuels, Vehicle and Systems Simulation, Batteries and Electric Drive Technology, and Materials Technologies, and SuperTruck Activities Should Be Retained

The subcommittee again faces a difficult task of setting priorities among many competing programs with limited resources. The subcommittee should seek to assure a proper balance between fully funding programs that are known to improve efficiency of existing energy-intensive sectors on a medium-term basis as well as more future-oriented, but uncertain other technologies. The current fiscal year 2013 budget request from DOE EERE properly funds those key heavy-duty vehicle programs and projects that bring a proven track record of real-world fuel savings, and we urge that it be retained.

The commercial vehicle research activities have been cross-cutting in scope and shared risk and benefits between DOE, private industry, the Department of Defense (DOD), Department of Transportation and Environmental Protection Agency (EPA). This suite of programs to make commercial vehicles more energy efficient—the 21st Century Truck Partnership and diesel engine and fuel research—have been among DOE EERE's most successful investments. They are proven to have helped meet important societal goals of economic growth and small business development (economics of more energy efficient commercial truck acquisition and ownership); cleaner air (reducing diesel engine emissions), reduced reliance on imported oil (increasing truck energy efficiency).

They have also enhanced our national security, through contributing to fuel savings of DOD military vehicles. Fuel accounts for 70 percent of the bulk tonnage transported to the battlefield and reducing consumption by 1 percent leads to 6,500 fewer soldier trips, which has been identified with saving lives on the battlefield through reduced risk in transporting fuel.[1]

The Need To Reduce Energy Consumption From Commercial Vehicles is Significant

In August 2011, President Obama announced the finalization of the first-ever fuel economy and greenhouse gas (GHG) reduction standards for medium- and heavy-duty commercial vehicles. This new regulation requires vehicle and engine manufacturers to improve efficiency by anywhere from 7 to 25 percent for model years 2014–2017, with the potential for further reductions beyond 2017.

Reaching these challenging goals will require substantial manufacturer investment in the next several years at a time when economic recovery and market potential for heavy-duty commercial trucks has shown some recent positive signs but still remains tentative. More than ever, the combined collaborative approach of the DOE program of shared research toward common energy-saving objectives is needed and necessary to assure continued progress and increase the speed of development, deployment of technologies, and societal benefits.

While manufacturers are already well at work to meet these aggressive and brand new regulatory requirements, continued collaboration and partnership within truck research programs that are funded at the committed levels will enable more rapid development and deployment of these advanced technologies than could have been accomplished without the collaborative government and industry partnership. This translates into greater reductions in energy use and savings to the economy and reduced emissions occuring earlier than predicted as well.

The 21st Century Truck Partnership and Related Research Programs Have Been Recently Reviewed and Found To Be of Significant Value and High Performance

The prestigious National Research Council of the National Academy of Sciences recently conducted an exhaustive review of the government industry partnership program for commercial truck efficiency. In a 2011 pre-publication report,[2] the independent NAS review panel noted that:

"Given the Federal regulatory requirements to reduce emissions and fuel consumption, it seems the sharing of research and development (R&D) costs between the government and U.S. manufacturers of trucks and buses or heavy-duty vehicle components are appropriate to develop new technologies. Thus, the 21CTP is providing access to the extraordinary expertise and equipment in Federal laboratories, in addition to seed funding that draws financial commitment from the companies to push forward in new technology areas." (Page S–3)

"The 21CTP should be continued to help meet the nation's goal of reduced fuel consumption in the transportation sector." (Page S–3)

"The three (see note) SuperTruck projects will be the flagship projects under the 21CTP for fiscal year 2011 through fiscal year 2014; the goals are in concert with recommendations made in the 2008 NRC Phase 1 report." (Page S–12)

(NOTE: After the NAS report was drafted, one additional project was added (for a total of four) which falls into the same category as the projects mentioned.)

The existing DOE EERE Commercial Vehicle and Engine Programs have delivered substantial and proven economic, environmental and energy saving benefits:

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[1] Bochenek, Grace. U.S. Army Tank Automotive Research Development and Engineering Center, 2010.

[2] Review of the 21st Century Truck Partnership, Second Report, 2012. National Academy of Sciences, National Research Council Pre-publication copy accessed from National Academies Web site March 22, 2012. http://www.nap.edu/catalog.php?record__id=13288 ISBN–10: 0–309–22247–8; ISBN–13: 978–0-309–22247–1.

For every $1 invested, advanced combustion research delivered $53 in benefits. According to a May 2010 study[3] previous advanced combustion research for laser and optical diagnostics along with combustion modeling undertaken by DOE and now in commercial vehicles on the road today saved 17.6 billion gallons of diesel fuel over a 12-year period (1995–2007); a 4.5-percent savings in fuel consumption over what would have occurred without the program investments. This translates into a monetized saving of $34.5 billion in 2008 dollars, and reduction of more than 177 million tons of CO_2 prevented.

The established goal of improving fuel economy by 20 percent for commercial vehicles in the ACE R&D has the potential to save more energy than the electrification of 1 million cars. Past investments have contributed to diesel engine manufacturers being able to meet the most stringent emissions standards on record, resulting in today's clean diesel technology with near zero emissions of ozone forming compounds (nitrogen oxides) and particulate matter. The total health and environmental benefits in terms of savings in air pollution and energy savings exceed $70 billion according to the previously referenced May 2010 study.

Fully Funding Commercial Vehicle Research Budgets Assures Continued Gains and That Will Help Expedite Fuel-Saving Technology Development and Deployment

Given the substantial progress made in the 21st Century Truck Program, a framework of continuous progress has been developed over time that is a predictive indicator of potential future success. Adequate DOE program funding can assure that the commercial vehicle, engine, and SuperTruck program goals of 50 percent increase in freight efficiency (ton-miles per gallon) will be more likely to be met. Truck and engine manufacturers face the unique challenge of competing societal demands of improved efficiency and near-zero emissions while meeting customer demands for lowest cost of operation. Significant investments in research are required but there are diminishing opportunities to recoup the substantial investments needed to meet these goals with only an average 200,000–250,000 heavy-duty trucks sold annually. Federal research investment in high-risk research is vital to the industry. DOE R&D programs are usually a 50–50 cost share between government and industry and this Federal match encourages companies to spend their R&D dollars in the United States. A fully funded SuperTruck program can assure these goals are more likely to be accomplished earlier than if companies alone shoulder larger research demands.

CONCLUSIONS

There is an incontrovertible and established need to improve energy efficiency of the Nation's commercial vehicles. Commercial diesel-powered trucks are the backbone of the U.S. economy and the prime movers of the Nation's goods movement system, and will be for the foreseeable future. Fuel consumption in this sector is projected to continue to grow with the economy. Past EERE engine and vehicle efficiency programs have delivered substantial and well-documented economic, energy and environmental benefits to society. To assure uninterrupted progress of these efforts, we urge that the subcommittee retain the proposed fiscal year 2013 budget request for the committed levels of SuperTruck and related program funding.

An adequate Government funding stream for the suite of VTPs like SuperTruck and the ACE R&D, Fuels Technologies, Batteries and Electric Drive Technologies, Vehicle and Systems Simulation, and Materials must be retained at DOE requested levels to assure continued progress and accelerate development and deployment of energy saving technologies. Any reductions to the fiscal year 2013 EERE proposed funding will jeopardize continued progress at an especially critical time as the industry moves to meet new GHG emissions and fuel efficiency goals, near-zero emissions levels along with competing customer demands with the backdrop of a weakened and recovering economy.

The diesel engine is the prime mover of America's transportation, infrastructure, and goods movement today and for the foreseeable future. The 21st CTP has made substantial contributions to the new near-zero emissions performance of diesel engines in commercial trucks and with the continued investments will assure further efficiency gains to meet future societal goals.

We appreciate the opportunity to file these comments.

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[3] Link, Albert N. Retrospective Benefit-Cost Evaluation of U.S. DOE Vehicle Combustion Engine R&D Investments, Department of Economics, University of North Carolina at Greensboro; May 2010.

PREPARED STATEMENT OF THE EDISON ELECTRIC INSTITUTE

The Edison Electric Institute (EEI) respectfully submits this written testimony for the record to the Senate Appropriations Subcommittee on Energy and Water Development. We appreciate this opportunity to share our views on some of the Department of Energy's (DOE) programs for the fiscal year 2013.

EEI is the association of U.S. shareholder-owned electric companies. Our members serve 95 percent of ultimate electricity customers in the shareholder-owned segment of the industry and represent approximately 70 percent of the U.S. electric power industry.

EEI has long advocated for an "all-of-the-above" energy strategy. Different regions of the country use different fuel mixes to generate electricity. Embracing a diverse and balanced energy portfolio is crucial to reliable, affordable electricity. Therefore, we respectfully ask the subcommittee to direct sufficient resources toward these critically important activities.

FOSSIL ENERGY

As the administration notes in its Office of Fossil Energy budget request, "the United States has 25 percent of the world's coal resources, and fossil fuels currently supply over 90 percent of the Nation's energy". Accordingly, EEI urges the subcommittee to ensure that fossil energy research, development, and demonstration (RD&D) receive as much funding as possible under the tight budget constraints of the subcommittee's allocation. We further urge the preservation and funding of fossil fuel loan guarantee authorities pending completion of the Section 1703 Program review by the U.S. Department of Treasury.

EEI urges strong support for carbon capture and storage (CCS) and advanced coal technology programs. Just this week, the Environmental Protection Agency (EPA) issued a proposal that effectively would require CCS on new coal-fired power plants, even though the technology is not commercially viable. CCS commercialization is still in the future, but demonstration technologies hold great promise, and we are working with the Congress and the administration to develop policies that will accelerate commercial availability and deployment. Coal is an important domestic energy resource; given this recent EPA rulemaking, commercially available CCS technologies are essential for coal to be a viable part of a diverse and balanced electric generation portfolio.

In addition to coal, EEI strongly advocates for adequate funding of policies that allow the ready access to affordable natural gas for electric generation, including environmentally responsible development of shale resources by the gas industry throughout the United States. Natural gas is an increasingly important source for electric generation, especially given its availability and low prices. As a result, our industry is a strong proponent of developing our natural gas resources.

NUCLEAR ENERGY

Given that nuclear energy is the Nation's largest source of carbon-free electricity production, and that construction of new plants will create tens of thousands of jobs, EEI urges strong support for the nuclear power loan guarantee program. Under DOE's implementation, participating borrowers pay the entire credit subsidy costs, making this program different from other loan programs administered by the Department.

EEI respectfully requests the subcommittee to oppose DOE's imposition of its decontamination and decommissioning tax on electric utilities for the cleanup of uranium enrichment facilities. As in past years, the administration is seeking this tax under a program in which the industry has already met its financial obligations while the Federal Government failed to pay its required share of the cleanup funds.

EEI strongly supports nuclear R&D, including funding for the Energy Innovation Hub on modeling and simulation of advanced nuclear reactor operations. In addition to this essential investment, we urge funding for the acceleration of technology development and commercialization of small modular nuclear reactors (SMRs). EEI supports DOE's announced cost-shared program with private industry to support SMR design and licensing.

ELECTRIC TRANSPORTATION

The need for fuel diversity carriers over into the transportation sector, where plug-in electric vehicles (PEVs) give Americans the choice to fill up at the pump or recharge their battery at home. Using domestically produced electricity to fuel a range of both on-road and off-road transportation uses has the potential to transform our Nation's transportation fleet. Electric transportation funding will help our

country reduce its dependence on foreign oil, thereby increasing our Nation's energy security.

EEI supports the DOE's Clean Cities program, which has brought together thousands of stakeholders in States across the Nation to support the deployment of alternative fuel vehicles and infrastructure. We are also supportive of the recently announced EV-Everywhere program, which will bring down the cost of batteries, charging infrastructure and electric vehicles so they are affordable for more families.

In 2011, according to the Oil Price Information Service, Americans spent more than $480 billion on gasoline, paying an average of more than $3.50-per-gallon, both record amounts. Already this year, gas prices are more than $4-per-gallon in many cities. Electrifying the Nation's light-duty vehicle fleet, which accounts for roughly 45 percent of total U.S. oil consumption, would reduce oil imports by more than 3 million barrels per day in 2030.

Another benefit of electric transportation is that real electricity prices historically have been more stable than real prices for both gasoline and natural gas. Electricity is produced domestically, using a wide variety of energy resources, which contributes to its greater price stability. Unlike oil and gas, electricity does not experience price volatility due to political instability or changes in the global markets.

SMART GRID

EEI urges robust funding of DOE's efforts to continue the deployment and commercialization of smart grid technologies. Research and development are also keys to accelerating America's shift to an information-enabled electricity grid. Modernizing the grid will increase operational efficiency, improve reliability, and provide more control and situational awareness both for utilities and their customers.

More than 90 percent of EEI's members are involved in grid modernization activity. As of September 1, 2011, electric utilities in more than 43 States have installed 27 million digital smart meters. Sixty-five million smart meters—covering 54 percent of U.S. households—are expected to be deployed by 2015.

DOE's smart grid program is a public-private partnership. To date, DOE funding has been matched by contributions of more than $5.5 billion from the private sector. In a time of large budget deficits, the subcommittee must ensure that funds are used to the greatest effect. We respectfully request that the subcommittee continue its support of these investments to achieve substantial cost savings and security in the Nation's grid.

ENERGY INNOVATION HUBS

EEI supports essential funding for DOE's Energy Innovation Hubs. Each of these Hubs will speed research and shorten the path from technological development to commercial deployment of highly promising energy-related technologies. Specifically, we support the Cyber Security Energy Delivery Systems Hub that conducts R&D activities addressing vulnerabilities within the Nation's electricity delivery system to reduce risk of energy disruptions due to cyber attacks. In addition, we support the Energy Efficient Building Systems Design Hub and the Battery/Energy Storage Hub, which will develop utility-sited energy storage as well as new batteries with improved lifetimes and strong capacities for expanding the range of electric vehicles while decreasing manufacturing cost.

For fiscal year 2013, in particular, we support funding for DOE's proposed Electricity Systems Hub. This new Hub would bring together a multidisciplinary team of researchers to address barriers to modernization, both short-term and long-term, at critical points in the various regions. Establishing this Energy Innovation Hub is important to facilitating and accelerating the process of integrating power flows, information flows, markets, and regulation in a way that complements grid modernization and other ongoing efforts. More importantly, the Hub approach will promote technological innovation and, ultimately, lower electricity costs through better utilization of utility assets.

TRANSMISSION AND RENEWABLE ENERGY

New transmission lines are increasingly needed to maintain reliability and relieve congestion. However, obtaining regulatory approvals for new facilities is a complex process, and often leads to costly delays, particularly when siting involves Federal lands.

EEI supports the administration's efforts to improve Federal coordination and ensure timely review of proposed renewable energy projects and transmission lines though the formation of two interagency Rapid Respond Teams, one for transmission and one for renewables.

The Rapid Respond Team for Transmission would accelerate the permitting review of seven proposed transmission lines that cut through 12 States. These projects will help increase electric reliability, integrate renewable energy projects and create thousands of jobs. In Pennsylvania and New Jersey, for example, PPL Electric Utilities (PPL) and Public Service Electric and Gas Company (PSE&G) have proposed a power line project which includes an approximately 145-mile long 500-kV transmission line from the Susquehanna Substation in Pennsylvania to the Roseland Substation in New Jersey, and several substations in both Pennsylvania and New Jersey. The project is expected to be in service in the spring of 2015, creating more than 2,000 new jobs in these two States alone.

PREPARED STATEMENT OF THE ELECTRIC DRIVE TRANSPORTATION ASSOCIATION

The Electric Drive Transportation Association (EDTA) is the cross-industry trade association promoting the advancement of electric drive technology and electrified transportation, and we are writing regarding the fiscal year 2013 request for the Department of Energy's (DOE) Vehicle Technologies and other electric drive programs.

Our members represent the entire value chain of electric drive, including vehicle manufacturers, battery and component manufacturers, utilities and energy companies, and smart grid and charging infrastructure developers. Collectively, we are committed to realizing the economic, national security, and environmental benefits of displacing oil with hybrid, plug-in hybrid, battery, and fuel cell electric vehicles.

Since we import nearly 50 percent of the oil used in the transportation sector—at a cost of more than $1 billion per day—there is a strategic and economic imperative to move toward domestically generated electricity as an alternative to oil. The need is already clear to families and businesses paying almost $4 gallon (and in some places more) for gasoline and diesel fuel today. Energy Information Administration (EIA) projects barrel prices more than $100 through 2013. Over the longer term, increasing global demand will put even great upward pressure on prices. The implications for the economy are also clear: every $10 per barrel increase costs the economy approximately $75 billion.

Electric drive vehicles are being introduced into the market place in numerous configurations, including passenger cars, commercial trucks, buses, tractors, and ground support equipment. For instance, more than a dozen plug-in electric drive vehicles will be on sale by the end of 2012. These vehicles can provide substantial fuel savings and reduced emissions while contributing to our energy and economic security. Federal support for research, development and deployment can accelerate achievement of those benefits.

The American Energy Innovation Council, a group of U.S. industry leaders working to "foster strong economic growth, create jobs in new industries and re-establish America's energy leadership" concluded in their 2011 report that Federal participation in energy innovation was imperative because "ready access to reliable affordable forms of energy is not only vital for the functioning of the larger economy, it is vital to people's everyday lives and significantly impacts the country's national security and environmental well-being".

The Department's Vehicle Technologies program promotes innovation in transportation through public/private partnerships and it leverages private sector investments. Working with the diverse stakeholders of the electric drive industry, DOE is helping to accelerate technology breakthroughs, promoting investment in manufacturing capacity and speeding deployment of electric drive vehicles and infrastructure.

We support the goals of the proposed EV Everywhere grand challenge to bring down electric vehicle costs and increase electric range and fast charging capability through expanded research in batteries and power electronics, electric drive motors and components, and advanced charging technologies. Specifically, we support the requested increase for Batteries and Electric Drive Technology and Vehicle and Systems Simulation and Testing activities that are advancing next generation charging, systems integration, and codes and standards for vehicle to grid communication.

The Vehicle Technologies program also conducts critical research and development activities to advance electrification of the medium- and heavy-duty fleet, including hybrid, plug-in hybrid, battery, and fuel cell electric trucks and buses. Electric drive in the commercial and transit fleet has great potential for fuel savings and emissions reductions: putting just 10,000 hybrid electric trucks to work would reduce diesel fuel use by 7.2 million gallons per year and reduce air pollutants and carbon dioxide emissions by 83,000 tons. We ask that the subcommittee direct meaningful

resources toward program activities, including work with industry partners, to reduce component costs and further enhance performance.

Fuel cell vehicles are also critical assets in the advanced vehicle portfolio. Fuel cell cars, trucks and nonroad vehicles will provide "zero emission/zero petroleum" options that are integral to meeting national goals for energy security and reduced pollution. The budget request points out that foreign industries are growing rapidly and that "sustained support of the [Hydrogen and Fuel Cell] program and continued progress toward its goals help enable the U.S. to maintain leadership in fuel cell manufacturing and hydrogen production technology. Success of the program will also support domestic employment and economic growth as well as increase our options for clean power".

The industry is meeting aggressive cost, performance and deployment milestones as it pushes toward commercialization in 2015. The ongoing partnership with DOE has already yielded substantial component cost reductions including reducing the cost of automotive fuel cells by more than 30 percent and doubling their durability. The industry is pushing vigorously toward commercialization in 2015. Specifically, we ask that funding for fuel cell electric vehicles and infrastructure deployment activities in Technology Validation and in early market development, including education and other testing and enabling activities, be provided at levels sufficient to enable the industry to build on technology and market achievements to meet 2015 commercialization targets.

Finally, we strongly support the Department's deployment programs, including Clean Cities' work with local and regional coalitions to expand deployment of electric drive vehicles (hybrid, plug-in hybrid, battery, and fuel cell electric vehicles), other alternative fuel vehicles, and recharging/fueling infrastructure as a path to increased energy security. These efforts have a demonstrated record of success and we support expansion of these partnerships and allocation of additional resources for communities deploying electric drive vehicles and recharging infrastructure.

Acknowledging the material budgetary constraints that the subcommittee faces, we respectfully request that the Committee direct the resources to the DOE's electric drive programs that are proportionate to the cost of our foreign oil dependence and that will enable the Department to build on its success, in partnership with the private sector, in accelerating the achievement of a secure and sustainable transportation sector.

We thank you for your consideration.

PREPARED STATEMENT OF THE FEDERATION OF AMERICAN SOCIETIES FOR EXPERIMENTAL BIOLOGY

The Federation of American Societies for Experimental Biology (FASEB) respectfully requests a fiscal year 2013 appropriation of $5.1 billion for the Department of Energy Office of Science (DOE SC). As you know, DOE SC funding in recent years has failed to reach the levels authorized in the America COMPETES Acts of 2007 and 2010. FASEB's broader goal is to support sustainable growth and a return to a funding trajectory reflective of the COMPETES reauthorization.

As a federation of 26 scientific societies, FASEB represents more than 100,000 life scientists and engineers, making it the largest coalition of biomedical research associations in the United States. FASEB's mission is to advance health and welfare by promoting progress and education in biological and biomedical sciences through service to its member societies and collaborative advocacy. FASEB enhances the ability of scientists and engineers to improve—through their research—the health, well-being, and productivity of all people.

DOE SC is the lead Federal agency supporting fundamental energy research and the Nation's largest supporter of basic research in the physical sciences. In addition to supporting research at more than 300 universities and institutions in all 50 States, DOE SC funds and manages 10 world-class national laboratories. Research and development user facilities located at these national laboratories provide more than 26,000 researchers with access to particle accelerators, advanced light sources, supercomputers, and other state-of-the-art instrumentation. The large-scale scientific tools at DOE SC facilities serve as invaluable resources to academic and government scientists, and they are also critical to the research and development capabilities of more than 40 Fortune 500 companies, including Exxon Mobil, Ford Motor, Boeing, and Pfizer.

A source of abundant, safe, and sustainable energy is essential for the Nation's future, and fundamental research supported by DOE SC provides the basis for discovering new energy technologies that can replace fossil fuels and reduce U.S. dependency on foreign oil. DOE SC-funded scientists and engineers are also making

extraordinary discoveries in other areas of energy research that improve health, protect the environment, create economic opportunities, and strengthen national security. For example, a team of DOE SC-funded scientists have determined that certain bacteria can help facilitate the cleanup of toxic uranium particles by converting them to forms easily collected from the environment. Understanding the process by which these bacteria interact with materials is important for increasing and improving their use in contamination removal techniques. Other researchers supported by DOE SC have identified the gene that controls ethanol production in a well-studied microorganism, a breakthrough that could expand the availability of biofuels and reduce reliance on imported energy sources. Discovery of a single gene responsible for ethanol production allows scientists to begin engineering more efficient biomass crops and microorganisms capable of generating higher ethanol yields at reduced costs.

In addition to its strong research programs, DOE SC supports user facilities that benefit the entire research community by providing unparalleled scientific and technological capabilities. For example, powerful xray light sources at DOE SC-supported national laboratories were used by the pharmaceutical company Plexxikon to develop a new drug treatment for malignant melanoma, the deadliest form of skin cancer. In this instance, scientists used the bright light sources to determine the molecular structure of a mutated protein, enabling the design and optimization of a drug to prevent the uncontrollable spread of cancer cells. Researchers from the life sciences community account for almost 40 percent of all researchers using the DOE SC Basic Energy Sciences light source facilities, many of which are studying proteins involved in other diseases such as Alzheimer's disease, bird flu, and hepatitis. The number of researchers using DOE SC facilities grew from 20,241 in fiscal year 2007 to 25,876 in fiscal year 2010, an increase of 27.8 percent. In recent years, the agency's funding has failed to keep pace with the growing demand for user facility access.

DOE SC instrumentation and technical expertise make efficient use of precious research resources, bringing researchers across the Nation access to cutting-edge technologies without duplication or prohibitive cost to institutions. The agency's national lab system advances strategic national goals and creates a research infrastructure unlike any other in the world. With its crucial mission, national labs, and unique scientific facilities, investment in DOE SC programs should be one of our highest research priorities. Now is the time to provide robust Federal funding for DOE SC to support the fundamental energy research required to overcome the Nation's most pressing challenges.

Thank you for the opportunity to offer FASEB's support for DOE SC.

PREPARED STATEMENT OF THE FERMI NATIONAL ACCELERATOR LABORATORY

We are the Executive Committee of the Users Organization of the Fermi National Accelerator Laboratory (Fermilab), located outside of Chicago, Illinois. We represent the approximately 3,000 scientists who perform research at Fermilab—our country's premier particle-physics laboratory. Also known as high-energy physics (HEP), our field is the study of the fundamental particles that are the building blocks of the universe, as well as their role in astrophysics, and the accelerators used in their study.

Eight U.S. national laboratories are actively engaged in HEP research. They operate facilities used by scientists and students from hundreds of U.S. universities, from other national laboratories, and from dozens of foreign institutions. Of these laboratories, Fermilab is the only one that is dedicated exclusively to HEP.

The Department of Energy (DOE) Office of Science supports HEP research at U.S. national laboratories and universities. More than 160 U.S. institutions in 43 States host physicists, astrophysicists, engineers, and accelerator scientists who work in HEP. More than one-half of these institutions are funded through the DOE Office of Science.

We urge the Senate to support sustained funding for fundamental science within the DOE Office of Science. We request that the portfolio of funding for fundamental research be balanced. HEP research is a key part of these programs and yields valuable benefits to our Nation as described below.

Our field is undergoing a transition, Fermilab's Tevatron accelerator program having come to a conclusion in 2011 after an extremely successful three decades. New programs are underway or just beginning that will provide the basis for vibrant, world-class research at Fermilab for the next several decades. This transition is a critical time for our field in the United States and requires sustained funding in order to maintain our role in world HEP research.

IMPACT OF BUDGET CUTS

Continued funding of science research is critical to our Nation. Severe budgetary cuts will have devastating effects that will be felt for decades. Science opportunities will be delayed or lost to other nations. Our reputation as the place to be for the best and brightest will be damaged.

We are therefore pleased that the administration's request for fiscal year 2013 includes a modest increase for the DOE Office of Science. However, we are concerned about the cuts for Fermilab included in that request: $30 million, or approximately 8 percent. This will require layoffs or furloughs. A large Fermilab project that will be key to sustaining our field in the United States over the next decade, the Long-Baseline Neutrino Experiment (LBNE), will be delayed. Such projects are critical to the near- and medium-term future of the laboratory and the U.S. HEP program.

The proposed cuts come at a time when Fermilab has closed the Tevatron program, resulting in cuts in fiscal year 2012 as well. This was done in order to consolidate resources so as to focus on new projects, especially LBNE. The resulting savings ought to be reinvested at Fermilab, in order to maintain the United States' preeminent HEP facility at the forefront of world HEP.

The largest and longest-lasting impact will be in our training of the next generation of scientists. Significant cuts will force us to train fewer students. They will demoralize our current students and post-docs, and some will quit. And we will no longer attract the best students. It will take a long time to recover from even a short-term cut to funding. These young people will be the foundation on which our economic growth depends. Without the advanced training offered by fields such as HEP, they will lack the skills to develop the next technology or the next new industry. Or they will be trained in other countries, and that innovation will occur overseas. It is critical that we remain attractive to United States and foreign students now and in the future.

VALUE OF HIGH-ENERGY PHYSICS RESEARCH

In our modern economy, science and technology (S&T) drive growth, as detailed in the National Academies' report, "Rising Above the Gathering Storm: Energizing and Employing America for a Brighter Economic Future", its 2010 update, Rising Above the Gathering Storm Revisited, the recent book, Knowledge and the Wealth of Nations, and many other publications. Continued leadership in S&T fields is critical to our economic growth, national security, and position vis-à-vis the rest of the world. Innovation by a highly trained workforce is key.

Without new technological developments within the United States, our economy will not grow and other countries will surpass us. But the most revolutionary technologies often require revolutions in our fundamental knowledge and understanding, or are invented in the research struggle of our most talented minds in pursuit of testing, measuring, and understanding new ideas and concepts. As an example, no one could have predicted the nature of our current society from the first studies of the electron at the dawn of the 20th century; however, we would not be communicating via email, fax, cellphone, or text messages without them. It has also famously been said that the light bulb could not have been invented by incremental improvements to the candle! Revolutionary technologies arise from new ways of thinking about society's problems—often derived from new experiments that ask new questions that cannot be answered using existing technology.

HEP strives to understand the most fundamental aspects of nature. While we can rarely predict the outcome, the quest for such knowledge has always led to numerous technological advances, a few of which are described below. What is predictable, is that we will educate and train some of the best and brightest students, who will contribute to our Nation in many different arenas.

VALUE OF TECHNOLOGY DEVELOPMENT

While the primary purpose of HEP research is not the creation or development of new technology, our work often requires it in order to accomplish our goals. Many of our experiments require technology that does not exist before the project is undertaken. Therefore, many of our researchers spend a significant part of their careers advancing high-tech particle detectors, developing complex computing algorithms, inventing new kinds of particle accelerators, or pushing the limits of high-speed electronics. Without continuous innovation, we would not be able to complete our experiments. And once these advances are made, they are often used in fields as diverse as medicine, materials research, and manufacturing.

An example is the construction of the Fermilab Tevatron accelerator, which reigned as the world's most powerful device of its kind for nearly three decades. It

required more than 1,000 superconducting magnets, placed around a 4-mile ring. Creating superconducting magnets requires superconducting wire. At the start of the project in the 1970s, it was known how to make such wire, but the industry needed in order to make it on a large scale did not exist. Fermilab researchers helped to build up that industry and advance its production techniques through a very successful joint government/business venture. Once the accelerator was complete in 1983, these businesses looked around to see what other projects could use superconducting wire. MRI machines that are now commonly used for medical imaging are an example. Because of the work of Fermilab in building the Tevatron, starting in the 1980s, commercial MRI scanners have now become widespread.

A current experiment led by Fermilab scientists is the Dark Energy Survey (DES). This requires a digital camera larger than any ever built. Its technological developments will ultimately influence the digital cameras available at your local electronics store as well as devices no one has yet dreamed up. A current research and development (R&D) effort by a university/national laboratory collaboration is inventing new, cost-effective particle detectors with unique power to resolve events on the picosecond (trillionth-of-a-second) time-scale. These will also doubtless lead to new industrial, research, and medical applications.

High-energy physicists have invented particle accelerators and continue to steward their development. Our work requires the most powerful particle accelerators that can be built. However, thousands of smaller accelerators are now used in many areas of technology. Of more than 30,000 particle accelerators throughout the world, only a small fraction are dedicated to HEP. Most are used by industry or for medical treatment and diagnosis. The tire industry, for example, now uses particle accelerators to treat their tires, reducing both the amount of rubber needed (by 3 pounds per tire) and the amounts of chemicals used in the production process. This industry is both more efficient and better for our environment because of the application of particle accelerators. This success was unanticipated in the early days of accelerator development. Industrial accelerator applications now range from the manufacture of shrink-wrap plastic to the processing of industrial coatings and automobile parts.

VALUE OF SCIENCE EDUCATION

The United States has long been the destination of choice for the best science students from around the world. Our universities provide an education that is second to none. Our national laboratories provide research opportunities that are unavailable elsewhere. Fermilab is an excellent example of this. Numerous students from foreign institutions travel to Fermilab to complete their research. Many of these students then choose to stay in the United States after completing their degrees.

Our students learn a variety of skills that are applicable in numerous fields. They learn to work on problems to which the answer is unknown and to adapt to unforeseen challenges. They learn skills in computer programming, data analysis, simulation of complex problems, and electronics development, among others. They learn to work in teams as members of international collaborations, finding innovative solutions to challenging problems. They learn how to take a project from start to finish, write a document detailing it, and present it to an audience. The complex analytical thinking necessary to solve problems in fundamental science can't be taught in a classroom, but is nonetheless crucial for solving problems in business and industry in the 21st century.

Many of our students choose to continue their immediate careers as postdoctoral associates. This provides a postgraduate education that further develops their skills. , docs generally take on more complex projects and develop leadership and management skills. Most HEP experiments involve 20 to 2,000 scientists and face challenges that are similar to those in many businesses.

Scientists trained in HEP work in telecommunications, software development, aerospace, education, medicine, government, and finance, to name a few. About 90 percent of our Ph.D. students enter new fields. Private businesses are the largest and most diverse employers of scientists trained in high-energy physics. Several former HEP researchers have founded or led small and large companies, including Richard Wellner, chief scientist at Univa UD, a cloud management software company; Francisco Vaca, CEO of Vaca Capital Management LLC; George Coutrakon, former director of operations at Loma Linda University Medical Center and now technical director of the Northern Illinois Proton Treatment and Research Center; Homaira Akbair, CEO of SkyBitz, a satellite-based tracking company; Rolland Johnson, founder and president of Muons, Inc., an accelerator R&D company; and Nagesh Kulkarni, CEO of Quarkonics Applied Research Corp., a business and technology consulting company.

Our researchers are engaged in education at all levels and understand the importance of scientific literacy in our society. For example, hundreds to thousands of public lectures are given around the country by high-energy physicists each year. Our scientists visit local schools to share the excitement of science through physics demonstrations or presentations of their work. The QuarkNet program, funded through the National Science Foundation, trains K–12 teachers in 28 States in cutting-edge research that they can take into the classroom. More than 38,000 students attend Fermilab education activities each year.

SUMMARY

Scientific research in general, and HEP in particular, provides value to our Nation that will be lost without sustained funding from the U.S. Government. The knowledge that is gained will lead to future innovation that will maintain our world-class scientific capabilities. The path to that knowledge will lead to advances in technology that will help sustain our economic recovery. And the education of students from the United States and abroad will provide the knowledgeable workforce that will carry us through the next half-century.

It is critically important to maintain our world-class position in scientific research. The repercussions of severe cuts will be felt for a long time. We urge the Senate Appropriations Committee to support the President's request to maintain our scientific research program for the long-term health of the Nation, and to restore funding to HEP and priority projects at Fermilab in order to reinvest in this core discovery scientific discipline.

PREPARED STATEMENT OF THE GAS TURBINE ASSOCIATION

The Gas Turbine Association (GTA) appreciates the opportunity to provide the United States Senate Committee on Appropriations Subcommittee on Energy and Water Development with our industry's statement recommending fiscal year 2013 funding levels for the Department of Energy (DOE).

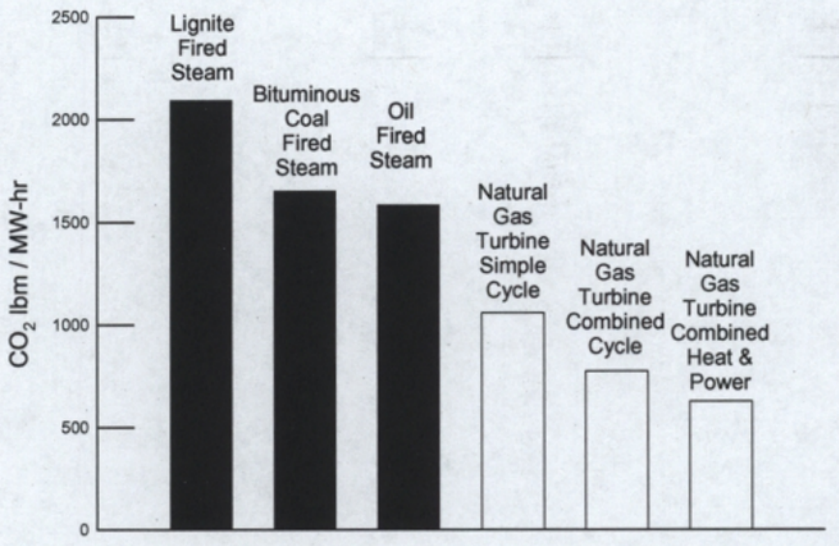
GTA respectfully recommends that the fiscal year 2013 appropriation for DOE Office of Fossil Energy include $20 million for the Hydrogen Turbines Program to meet critical national goals of job creation, fuel conservation, greenhouse gas reduction, fuel flexibility (including syngas and hydrogen), and criteria pollutant reduction. A spending level of $20 million is more appropriate than the administration's recommendation $12.6 million considering that the fiscal year 2012 spending level was $14.6 and years of under-funding for Gas Turbine Technologies is resulting in our Nation's loss of leadership in this important industry. A spending level of $12.6 million will result in pushing out the timeline for the development and deployment of environmentally advanced gas turbines by several years.

Federal investment in research and technology development for advanced gas turbines that are more efficient, versatile, cleaner, and have the ability to burn hydrogen-bearing reduced carbon synthetic fuels and carbon-neutral alternative fuels is needed to ensure the reliable supply of electricity in the next several decades. Japan and China are quickly moving into leadership positions in this industry which in the United States has been responsible for hundreds of thousands of research and development (R&D), engineering, manufacturing and field service jobs for the past 75 years. Japan is consistently investing more than $80 million per year, and China has recently announced an indigenous F class gas turbine (F class represents 50 percent of the gas turbine market). If our Nation continues to underfund research and development efforts in gas turbine technology, the resulting loss of jobs and U.S. technology will be long-term and possibly permanent.

We believe that a modest Federal investment in future gas turbine technologies will be repaid many times over in reduced electricity costs, increased flexibility and increased reliability for our Nation's consumers. In addition, we believe that additional funding should be directed at encouraging university based research that will "jump-start" the careers of future engineering graduates in the gas turbine industry.

The gas turbine industry's R&D partnership with the Federal Government has steadily increased powerplant efficiency to the point where natural gas fired turbines can reach combined cycle efficiencies of 60 percent, and quick-start simple cycle peaking units can reach 46 percent. The gas turbine's clean exhaust can be used to create hot water, steam, or even chilled water. In such combined heat and power applications, overall system efficiency levels can reach 60 to 85 percent lower heating value (LHV).

CO_2 EMISSIONS



Gas turbines are both more efficient and typically burn lower carbon fuels compared to other types of combustion-based power generation and mechanical drive applications. The Nation needs to reinvigorate the gas turbine industry/government partnership in order to develop new, low-carbon powerplant solutions. This can be done by funding research to make gas turbines both efficient and more capable of utilizing hydrogen and synthetic fuels as well as increasing the efficiency, durability and emissions capability of natural gas fired turbines. If the Congress provides adequate funding to DOE's turbine R&D efforts, we believe technology development and deployment will be accelerated to a pace that will allow the United States to achieve its emissions and energy security goals.

GTA respectfully requests $20 million in fiscal year 2013 appropriations for the Fossil Energy Hydrogen Turbines Program to meet critical national goals of job growth, fuel conservation, fuel flexibility (including natural gas, syngas and hydrogen), greenhouse gas reduction, and criteria pollutant reduction.

PREPARED STATEMENT OF GE ENERGY

OVERVIEW

The following testimony is submitted on behalf of GE Energy (GE) for the consideration of the subcommittee during its deliberations regarding the fiscal year 2013 budget requests for the Department of Energy (DOE). GE recognizes that particularly difficult choices must be made in fiscal year 2013. These budget pressures make it essential that the subcommittee prioritize those programs that will contribute to economic growth and jobs creation and support core technology development. GE recommends:

—in the Fossil Energy program, increased investment in pre-combustion carbon capture and gasification systems;
—in Energy Efficiency and Renewable Energy, full funding of the budget requests for solar and wind technologies;
—in Electricity Delivery and Energy Reliability, full funding of the budget request for research and development; and
—in Nuclear Energy, full funding for the Small Modular Reactor Licensing Technical Support program and additional amounts for research and development (R&D) in Advanced Reactors Concepts and Small Modular Reactor Advanced Concepts.

Coal Program: Carbon Capture, Pre-Combustion Capture

GE is concerned that the funding reductions proposed in gasification systems and pre-combustion carbon capture will negatively affect programs that are critically important to the future of power generation from coal. These programs are on the path to improve the cost and performance of Integrated Gasification Combined Cycle (IGCC) technology to enable IGCC to be a cost-competitive option for low-carbon power generation.

IGCC is capable today of achieving the emissions standards of the Environmental Protection Agency (EPA) mercury and air toxics standards and new source performance standards for new coal plants without additional R&D. Compared with conventional coal plants, IGCC consumes less water, produces useful coal byproducts, and can co-produce valuable transportation fuels and chemicals that reduce oil imports. With its proven, pre-combustion carbon capture, IGCC also provides CO_2 useful for enhanced oil recovery (EOR) at lower cost compared to combustion coal technology.

GE therefore recommends that fiscal year 2013 funding for Carbon Capture: Pre-combustion Capture be increased by $6 million to $17.4 million. This increased funding is needed to:

—continue key programs that have met their early goals;
—develop alternative capture processes; and
—provide for new competitive solicitations.

GE also recommends that fiscal year 2013 funding for Advanced Energy Systems: Gasification Systems be increased by $5.7 million to $37.6 million. This increased funding is needed to support the next phase of R&D focused on reducing IGCC cost, increasing performance and improving availability.

Clean Coal Power Initiative

The Clean Coal Power Initiative (CCPI) is the key vehicle for commercial validation of technology emerging from the DOE R&D programs and from industry. Current CCPI projects are supporting first generation gasification and IGCC technology. DOE has not announced plans for a future CCPI solicitation. GE recommends that DOE move forward with the development of a CCPI–4 solicitation in preparation for the commercial demonstration of second-generation technologies, and that a modest level of funding for this solicitation be provided in fiscal year 2013. A CCPI–4 solicitation should focus on demonstration of technology that is specifically optimized for EOR so as to provide a revenue stream that will reduce the operating cost impact that could be a deterrent to cost-share participation by industry.

Advanced Energy Systems, Hydrogen Turbines

According to the DOE's 2011 performance report, the advanced turbine program has made consistent progress toward fully mitigating the cost and performance penalty associated with carbon capture. The funding reductions proposed in the fiscal year 2013 budget request will:

—delay completion of Phase II development;
—curtail Phase III implementation and prototype validation; and
—significantly scale back important university research.

GE, therefore, recommends that fiscal year 2013 funding for Advanced Energy Systems: Hydrogen Turbines be increased to $20 million. This amount would still represent a 33 percent reduction from the fiscal year 2011 funding level, but would better balance program needs and accomplishments.

Water Management

Large amounts of water are needed to produce or extract energy, and large amounts of energy are needed to treat or transport water. EPA is preparing to finalize its proposed rules for cooling water intake structures under section 316(b) of the Clean Water Act, which underscores the important linkage between water use and energy generation. In addition, CO_2 capture can increase raw water usage by up to 125 percent, depending on the underlying technology. DOE has set aggressive goals of reducing freshwater withdrawals and consumption 50 percent by 2015 and 70 percent by 2020. Federal support for water-related R&D is necessary if these goals are to be reached. Unfortunately, the fiscal year 2013 budget does not contain any new funding for Water Management activities within the fossil energy program.

GE believes that Federal investment in R&D for innovative water reuse technologies and demonstration projects is warranted. In addition to R&D focused on cooling tower blowdown water reuse, Flue Gas Desulphurization wastewater reuse and recovery, and ash pond solids reduction, treatment and reuse of source water for and flowback/produced water from unconventional oil and natural gas production would further reduce environmental impacts and operational costs of upstream en-

ergy processes. Advancement of reuse/treatment technologies for the conversion of impaired wastewater streams into renewable water sources in areas of water scarcity could reduce the need to use energy to transport water over long distances and to support electricity generation.

ENERGY EFFICIENCY AND RENEWABLE ENERGY

Wind

GE supports full funding of the DOE's fiscal year 2013 request for wind energy. The cost of wind energy has declined significantly in recent years due to technological advances and manufacturing scale, both of which have benefited from past DOE R&D support. However, the decline in the price of natural gas generation accentuates the need for continued technological advances to support wind affordability and reliability. DOE funding support is critical for catalyzing next-generation innovations in both onshore and offshore wind. Related work in wind resource assessment and system integration will further enable higher levels of wind deployment and penetration.

Solar

GE supports full funding of the DOE's fiscal year 2013 request for solar energy. DOE research programs have been central to recent cost declines in solar electricity, and the SunShot Initiative to achieve cost-competitiveness with other electricity sources is both ambitious and necessary. While solar cost-competitiveness will not be accomplished through DOE funding support alone, the Government can play an essential role in leveraging additional industry and university research. GE also welcomes the PV Program's focus on lowering costs through conversion efficiency and manufacturing process improvements, as well as the overall program's investigation of balance-of-system issues.

Fuel Cells

R&D is required to develop advanced fuel cell technologies to drive efficiency to make this technology more commercially viable. Research into combined cycle technologies using fuel cell and aero derivatives or natural gas reciprocating engines is needed to achieve efficiency goals of 90 percent or greater.

ELECTRICITY DELIVERY AND ENERGY RELIABILITY

Research and Development

GE supports the fiscal year 2013 budget request for OE Research and Development. R&D on grid modernization technologies will advance reliable, affordable, efficient, and secure delivery of electric power to industrial, commercial, and residential customers, while at the same time preparing the grid to support greater quantities of renewable energy. Integration of traditional electric grid infrastructures with modern IT computer and communications systems will be necessary, and GE continues to work closely with national and international standards development organizations in the development of grid interoperability standards. Cybersecurity remains a fundamental design principle of this effort.

In order to reduce risk and accelerate the adoption of new advanced grid modernization technologies, R&D funding will be required for the development of modeling, simulation, and visualization of both the transmission and distribution networks. Advanced modeling capabilities will serve as a critical tool in the modernization of the electric grid by assisting grid operators in identifying the technical limits of conventional grid technologies, and facilitating development of new technologies and solutions to respond to a changing energy mix and an increasingly responsive consumer base. In addition, advanced modeling capabilities can enable grid operators and power systems planners to aggregate, analyze, and act upon the vast quantities of data collected by grid modernization technologies. DOE should expand industry participation in programs to develop modeling and computational capabilities for grid applications to fully leverage work already underway.

In conjunction with modeling and simulation research, R&D is required to develop advanced grid analytics software to optimize grid efficiency and reliability, including "Big Data" storage and real time analysis and exascale computing. Research into broadband wireless technologies will be required to collect the field data required in "real time." Research into low costs sensors will be needed to monitor the status of a modern grid.

Energy Storage

GE endorses the requested funding for further research into energy storage technologies. The fiscal year 2013 budget request appropriately broadens the scope of

interest to include innovations in new battery chemistries. This could lead to radical improvements in energy storage performance. Electricity storage is a critical technology to enable both deployment of electric vehicles and improvements in grid stability and efficiency through utility-scale storage.

Equal attention should be given to both electric vehicles and storage. The requirements of utility-scale storage are quite different from those of electric vehicles. GE recommends inclusion of research into large-scale energy storage into this line item. This includes all potential storage modalities such as compressed air, pumped hydro, and flywheel technologies.

In addition, investment should be made in research into broader applications of storage technologies such as ancillary services, including frequency regulation service to balance supply and demand on the transmission system as addressed in Order No. 755 issued by the Federal Energy Regulatory Commission in October 2011, energy arbitrage, and peak shaving.

NUCLEAR ENERGY

Next Generation of Nuclear

GE Hitachi Nuclear Energy (GEH) wholeheartedly supports the efforts of DOE's Office of Nuclear Energy to research and develop the next generation of nuclear technologies for carbon free electricity generation and for the management of used nuclear fuel. In support of both of these goals, the Congress should provide the requested $65 million for the cost-shared, industry partnership Small Modular Reactor Licensing Technical Support program ("SMR program") for fiscal year 2013. At the direction of the Congress, DOE opened the SMR program competition to all advanced reactor technologies providing 300 MW or less of power. GEH concurs with the Congress that a fleet of advanced reactor SMRs will play a key role in meeting the country's energy security, economic, and carbon-free, baseload generation goals. Recognizing the high cost and extreme importance associated with the design certification and licensing of first-of-a-kind SMR designs, GEH recommends that the SMR program, in which industry is providing a minimum 50-percent contribution, be funded at the requested amount.

Advanced reactors, like GEH's PRISM reactor, can provide secure and clean baseload electricity while benefitting the back end of the fuel cycle. For this reason, it is important that the Reactor Concepts research, development, and demonstration program be provided sufficient funding. In particular, the Advanced Reactors Concepts and Small Modular Reactor Advanced Concepts R&D subprograms, which are facing 43-percent and 34-percent funding cuts, respectively, should be expanded. Both of these subprograms focus on high-value research to address near term challenges such as demonstration, simulation and training programs, and the application of advanced modularization and construction techniques to help reduce new plant capital costs.

GEH further supports the funding of National Nuclear Security Administration's Nonproliferation Policy and International Security program. International civil nuclear cooperation is fundamental to implement our nonproliferation policy goals and to keep viable our domestic commercial nuclear capabilities. Recognizing the importance of U.S. commercial nuclear exports in achieving our nonproliferation objectives, GEH supports increasing the fiscal year 2013 budget for the Nonproliferation Policy subprogram.

PREPARED STATEMENT OF THE NATIONAL ASSOCIATION OF STATE ENERGY OFFICIALS

Chairperson Feinstein and members of the subcommittee: I am Malcolm Woolf of Maryland and chair of the National Association of State Energy Officials (NASEO). NASEO is submitting this testimony in support of funding for a variety of Department of Energy (DOE) programs. Specifically, we are testifying in support of no less than $50 million for the base, formula State Energy Program (SEP). We urge the subcommittee to strive for the $125 million figure, which is equal to the fiscal year 2012 authorization. SEP is the most successful program supported by the Congress and DOE in this area. This should be base program funding, with no competitive portion, which focuses primarily on DOE's internal priorities. SEP is focused on working with private business to help facilitate direct energy project development, where most of the resources are expended. SEP has set a standard for State-Federal cooperation and matching funds to achieve critical Federal and State energy goals. The base SEP funds are the critical linchpin to help States in building on these activities and expanding energy-related economic development, much as SEP has done for 30 years. We also support the $210 million level for the Weatherization Assistance Program (WAP). These programs are successful and have a strong record of

delivering savings to low-income Americans, homeowners, businesses, and industry. We also support the budget request for the Energy Information Administration (EIA) of $116.4 million. EIA's State-by-State data is very helpful. EIA funding is a critical piece of energy emergency preparedness and response, and there are significant EIA responsibilities under the Energy Independence and Security Act (EISA). NASEO continues to support funding for a variety of critical buildings programs, including Building Codes Training and Assistance, ENERGY STAR, and residential energy efficiency at least at the fiscal year 2012 level, and Building Codes at a $15 million funding level. NASEO also supports funding for the Office of Electricity Delivery and Energy Reliability (OE) at the level of the fiscal year 2013 budget request. Specific funding should be provided for the Division of Infrastructure Security and Energy Restoration of no less than $18 million, which funds critical energy assurance activities. We also strongly support the research and development (R&D) function and Operations and Analysis function within OE. The industries program (now renamed the Advanced Manufacturing program) should be funded at least at the fiscal year 2012 level, to promote efficiency efforts and to maintain U.S. manufacturing jobs.

Formula SEP funding provides a basis for States to share best practices among themselves. These best practices (even without stimulus funds) allow States to get a great deal accomplished. These types of activities include energy financing programs, revolving loans, utility-based programs, energy service performance contracts, et cetera. We greatly appreciate the support of the subcommittee for SEP in the past.

In January 2003 (and updated in 2005), Oak Ridge National Laboratory (ORNL) completed a study and concluded, "The impressive savings and emissions reductions numbers, ratios of savings to funding, and payback periods . . . indicate that the State Energy Program is operating effectively and is having a substantial positive impact on the nation's energy situation". ORNL found that $1 in SEP funding yields:

—$7.22 in annual energy cost savings;
—$10.71 in leveraged funding from the States and private sector in 18 types of project areas;
—annual energy savings of 47,593,409 million source BTUs; and
—annual cost savings of $333,623,619.

Energy price volatility makes the program more essential as businesses and States work together to maintain our competitive edge.

STIMULUS FUNDING IMPLEMENTATION

We have been working closely with DOE to implement the American Recovery and Reinvestment Act (ARRA) programs as quickly as possible. We have had regular calls with all the State energy officials to address implementation questions. We have also had a series of regional conference calls among the States, and we have seven regional coordinators helping to share best practices among the States. NASEO is sharing best practices and providing information to officials at all levels of government in order to more effectively coordinate this effort. We are convinced that these funds are helping to assist the private sector to implement major positive changes in the U.S. economy that will improve all sectors of the economy. NASEO believes it is important to maintain base levels of appropriations for critical programs, such as SEP and Weatherization, in order to avoid a huge decrease in funding after a rapid stimulus increase.

With respect to ARRA spending for SEP, of the $3.1 billion appropriated, all the work is being implemented quickly. The deadlines set forth in the statute will be satisfied. We and DOE have worked through the barriers that slowed spending, including National Environmental Policy Act (NEPA) compliance, Davis-Bacon wage rates, Buy-American clauses, historic preservation, lead paint requirements, and general procurement issues. It is important to stress that the key figures are the "commitment" and "contracted" amounts, because that is when people get hired and work commences. States generally do not pay until projects are actually completed and milestones are met. We do not pay-up front in most cases. In economics jargon, the Federal spending figure is actually a lagging indicator. Of the ARRA funds dedicated to SEP and Energy Efficiency and Conservation Block Grant (EECBG), approximately $1 billion has been dedicated to energy financing programs in cooperation with the private sector. This has the greatest long-term potential.

Examples of Successful State Energy Program Activities.—The States have implemented thousands of projects. We have previously supplied to subcommittee staff examples of programs and projects implemented. Here are a few representative examples.

Alabama's SEP funds are being used to support the purchase and installation of energy efficient equipment in 118 Alabama K–12 schools. The energy improvements have generated cost-savings exceeding $1 million a year. The Talladega County Board of Education replaced 31 heating, ventilation, and air conditioning (HVAC) units in 17 schools. The new efficient units are saving the district more than $75,000 annually. Winston County Board of Education replaced 14 HVAC units in two of its schools with new efficient units which are saving the school more than 20 percent on electricity costs a year.

Alaska collected benchmarking data on 1,300 public facilities in order to identify high-energy using buildings. A total of 351 public buildings with a high Energy Use Index were identified and are undergoing Investment Grade Audits, which will pinpoint specific energy improvement projects. These energy measures will be funded through a loan program where the project's debt service will be paid entirely through the energy cost savings.

California is improving energy efficiency in State-owned buildings through the State Property Revolving Loan Fund Program. This sustainable loan program is supporting energy upgrades in more than 60 buildings located throughout the State—including energy retrofit projects in 18 California Highway Patrol Offices. As a result, a field office in Oakland now has energy efficient lights that are saving nearly $21,000 a year in energy costs. The Oakland lighting project will pay for itself in cost savings in just more than 2 years.

Illinois is promoting the development of renewable energy and energy efficiency manufacturers and supply-chain businesses in the State. Since 2010, the Green Business Development Grant Program has awarded grants to 25 Illinois manufacturers that have expanded into the green technology sector by retrofitting their manufacturing processes. Ingersoll Machine Tools, Inc., a Rockford-based manufacturer of aviation components, used a Green Business grant to purchase and retrofit equipment so it can also produce wind turbine components. The retooling effort created 87 new jobs at Ingersoll. Funk Linko has been producing light poles at its Chicago Heights facility since 1925. With a Green Business grant the company retooled its existing steel mill equipment to produce components for wind power generation.

The Iowa State Energy Office provided a $1.7 million matching grant funded by SEP to support the Sun Prairie Vista Court Apartments in reducing energy use by implementing and documenting the performance of new, energy-efficient technologies that include, for example, variable speed pumps, thermal solar collectors for hot water, and induction exterior lighting. To measure the benefits of the efficiency upgrades, the apartment complex will monitor before and after results, including real-life information on energy use. Tenants are benefiting from the energy efficiency improvement. The demonstration project employed approximately 21 individuals and produces projected annual energy savings of $111,417.

In Kentucky $14 million has been dedicated to the Green Bank of Kentucky for energy efficiency financing for public buildings. To date, 11 Green Bank loans have funded energy upgrades in 61 public buildings. The Kentucky Department of Veterans Affairs used a Green Bank loan for energy upgrades in three of its facilities—Thomas-Hood, and the East and West Kentucky Veterans Centers. These facility improvements are generating annual energy cost savings of $195,000, and $23,000 annually in water savings. The savings will repay the Green Bank loan in less than 12 years and after that all further savings will directly benefit the taxpayers of Kentucky.

Louisiana's Transportation Efficiency and Alternative Fuels Program awarded a grant to Bossier City for two publicly accessible Compressed Natural Gas fueling stations and the purchase of 10 heavy duty compressed natural gas (CNG) vehicles for the city's fleet. The Bossier City project has resulted in the displacement of approximately 270,000 gallons of diesel or gasoline per year and created 10 new jobs.

Maine's Home Energy Savings Program, which launched in 2010, has to date resulted in approximately 5,000 residential energy audits with more than 3,000 of these homeowners receiving rebates for whole house energy upgrades. More than 100 licensed construction companies have been certified to participate in the program, which has resulted in excess of $27 million worth of residential energy retrofit projects. These energy improvements are saving homeowners an average of 40 percent in energy costs, or approximately $1,454 per year, amounting to savings of approximately 405 gallons of heating oil per year.

Mississippi's public buildings program is helping to finance energy-saving upgrades through performance contracting in 10 public institutions. The participating public sector partners include the Biloxi School District, Cleveland School District, Desoto County, Jefferson County, Lawrence County School District, Mississippi State Hospital, Monroe County School District, Claiborne County, Alcorn County School District and Hollandale School District. Under the program, 149 public build-

ings, representing more than 3 million square feet of space, have been completed. The Biloxi Public Schools project was completed in October 2011 and is expected to save more than $275,000 a year in utility costs.

Montana improved its recycling infrastructure in communities throughout the State with the purchase of equipment to collect, store, and transport recyclables to market and assist local businesses use the materials collected. A total of 19 recycling projects were funded through the Montana Recycling Infrastructure Grants program, including recycling collection bins in Libby, Troy, Colstrip, St. Ignatius, Ronan, Polson, Bozeman, Havre, Shelby and at sporting events, performances and tradeshows held on the campus of Montana State University.

New Jersey supported the development of six combined heat and power (CHP) projects at commercial and industrial customers. Results include a 3.2 megawatt (MW) CHP project at the National Gypsum Company facility in Burlington. Other projects include a 9.5 MW cogeneration unit at the DSM Nutritional Products facility in Belvidere, a 1.1 MW gas engine generator at Ocean City College, and a 4.6 MW cogeneration plant for the new University Medical Center at Princeton. All totaled, nearly 35 MW of clean-energy production has resulted from this SEP-funded program.

Rhode Island's Deliverable Fuels Program provides incentives and rebates for energy retrofits to customers who heat their homes and businesses with oil, propane, or other deliverable fuels. The program launched in August 2010, and in the first 6 months 1,431 audits had been conducted statewide. Of these audits, 546 customers implemented recommended heating system replacements or other energy saving measures. These initial retrofits will reduce heating oil consumption by 2 million gallons over the next 20 years, saving these customers a combined $7 million through lower heating bills.

South Carolina's public building energy retrofit program has resulted in energy efficiency improvements in 579 buildings statewide. The buildings represent nearly 21 million square feet of public building space and include 32 2- and 4-year colleges, 22 State agencies and 85 school districts. Williamsburg Technical College used a grant from this program to upgrade lighting and replace outdated HVAC units. These upgrades will pay for themselves in energy costs savings in less than 2 years and will help the college save more than $30,000 annually going forward.

South Dakota conducted energy audits of all State-owned buildings. Based on the audit's data, grants, and loans were executed to implement cost-effective projects in 55 public buildings. A boiler replacement in the 100-year-old State capitol building complex is among the completed projects. The boiler replacement is projected to save taxpayers more than $2 million in energy costs over the life of the new equipment.

Tennessee's Volunteer State Solar Initiative's grant programs have awarded a total of 236 grants to date and more than $40 million of private funds have been leveraged. The grant-funded projects have added approximately 6.5 MW of solar power to the grid.

Texas' Transportation Efficiency Program awarded 16 grants for the synchronization of traffic signals and/or the replacement of traffic signal lights with LEDs. A major traffic synchronization project in Missouri City retimed and synchronized traffic signals at 44 intersections on 120 lane miles of six major roads. This one project is saving an estimated 47,000 hours annually for people traveling those roads during weekday rush hour.

The Washington Community Energy Efficiency Pilot Program has to-date retrofitted 1,154 commercial buildings representing nearly 1.2 million square feet, and more than 8,000 residential structures throughout the State. In addition, it created the foundation for a sustainable residential and non-residential energy retrofit industry and workforce in the State of Washington.

PREPARED STATEMENT OF THE NATIONAL ASSOCIATION FOR STATE COMMUNITY SERVICES PROGRAMS

The National Association for State Community Services Programs (NASCSP), urges the U.S. Senate Committee on Appropriations Subcommittee on Energy and Water Development to fund the Department of Energy's (DOE) Weatherization Assistance Program (WAP) at $210 million. In these difficult budgetary times, we understand that tough decisions have to be made. However, WAP is proven, cost-effective, measurably successful, and vital to the Nation's energy security and energy efficiency movements, delivering savings to low-income Americans, businesses, and industry. WAP faces an uphill battle in the immediate future do to a reduction in funding and leading to the loss of jobs and capacity to assist low-income Americans. It is necessary to fund WAP at this level in order to sustain its historic infrastruc-

ture in and widespread impact on all States and local communities as well as the expanded training and technical assistance expertise and activities enabled with the funding provided by the American Recovery and Reinvestment Act of 2009 (ARRA). This funding level is essential to continue and improve this outstanding program for our citizens. Due to the close of ARRA funding in March 2012 and the severely limited 2012 funding, continued funding is even more critical to allow the WAP Network to fulfill its mandate duties and ensure continued quality and success at pre-Recovery Act levels.

Some examples of the program's accomplishments include:

—Creation and support of more than 13,000 full-time, highly skilled jobs within the service delivery network due to ARRA funds, the second highest in the Nation, with 8,000–10,000 additional jobs from annual grant funding, and many more in related businesses, such as materials suppliers;

—Weatherization of an additional 700,000 homes occupied by low-income families, more than 100,000 homes above projected numbers, due to the ARRA and tens of thousands of more homes through annual appropriations, thereby reducing energy use and associated energy bills;

—Served more than 7.1 million low-income homes since the program's inception, with an additional 38.3 million eligible;

—Saves an estimated 35 percent of consumption for the typical home, with savings continuing year-after-year and actual $1 savings increasing as fuel prices increase;

—Saves $437 in first year energy savings for households weatherized;

—Returns $2.51 for every $1 spent in energy and nonenergy benefits over the life of the weatherized home;

—Serves as a foundation for residential energy efficiency retrofit standards, technical skills, and workforce training for the emerging broader market;

—Supports communities through local purchasing and jobs created nationwide;

—Reduces residential and power plant emissions of carbon dioxide by 2.65 metric tons/year per home; and

—Decreases national energy consumption by the equivalent of 24.1 million barrels of oil annually.

WAP is the largest residential energy conservation program in the Nation and serves an essential function by helping low-income families reduce their energy use. The program was developed in the late-1970s as a response to rapidly rising energy costs associated with oil shortages created by oil embargoes. The Congress acknowledged that low-income families were particularly vulnerable to increased energy price fluctuations and created the program to assist those families by reducing the cost to heat their homes. WAP was institutionalized within the Department of Energy in 1979 and today operates in all 50 States, the District of Columbia, five U.S. territories, and several Native American Tribes. Approximately 1,000 local agencies provide services in every political jurisdiction of the country using direct hire crews and local contractors to do the work, thus investing in local businesses and communities. These network providers use program funds to improve the energy efficiency of low-income dwellings, utilizing the most advanced technologies and testing protocols available in the housing industry. Since the Program's inception, more than 7.1 million homes have been weatherized using Federal, State, utility, and other monies.

WAP is still as relevant now as it was when it was formed in response to the energy crisis 30 years ago. The savings to America's most vulnerable citizens are significant and make a huge, immediate difference in their lives. These families have an average energy burden—the percentage of their income needed to pay residential energy bills—around 15 percent of their income as compared to around 3 percent for non-low income households, or five times greater. And the poorest families have a much higher energy burden than that. For example, in the State of California, Subcommittee Chair Dianne Feinstein's home State, there are more than 718,000 households below 50 percent of the Federal poverty level, making less than $12,000 per year for a family of four. Those families have an energy burden of 36.5 percent—more than one-third of their income. With lower energy bills, these families can increase their usable income and buy other essentials like food, shelter, clothing, medicine, and healthcare and thus investing in local businesses and communities. WAP provides a positive return on investment to meet its primary objectives of making homes warmer in winter and cooler in summer and creating safer and healthier indoor environments.

Because of the advanced diagnostics and technology developed in WAP, the program is the foundation for the emerging green energy efficiency retrofit workforce. There are approximately 25,000 jobs in the Weatherization network, with many more supported in related businesses, such as material suppliers. These jobs are

good, living wage jobs, which are more important than ever due to the economic downturn in the housing and construction industries. Workers are highly trained and receive on-going instruction to further develop their skills. WAP is at the core of the larger energy-efficiency retrofit market, and its training curricula, methods, and centers play an integral role in developing tools and techniques and a workforce. WAP managers, trainers, and technical experts figure prominently in the Recovery through Retrofit initiative, contributing their expertise to the Workforce Guidelines for Residential Energy Efficiency Workers and playing a key role in the development of standardized training curricula, worker certifications, and training facility accreditations.

In order to sustain the program, it is critical that the WAP maintain adequate funding so the network can continue to provide jobs and support local economies as well as promote energy efficiency nationwide. The fiscal year 2012 level of $68 million is not enough to continue nationwide coverage of the program and continued low funding will result in the loss of jobs, investment of local business, and energy efficiency services that ensure the health and safety of families across the country.

NASCSP urges the subcommittee to fund WAP at $210 million for fiscal year 2013. The WAP remains a crucial component of our Nation's energy future. WAP is a clearly proven investment, has provided significant energy savings, and has helped more than 7.1 million families live in safer, more comfortable living conditions. This is a program that has proved its worth and effectiveness for more than 30 years. NASCSP looks forward to working with subcommittee members in the future as we attempt to create energy self-sufficiency and good jobs for millions of American families through these invaluable national programs.

PREPARED STATEMENT OF THE NATIONAL CARBON CAPTURE CENTER

Madam Chairwoman and members of the subcommittee: Southern Company operates the Department of Energy's (DOE) National Carbon Capture Center (NCCC) (http://nationalcarboncapturecenter.com) at the Power Systems Development Facility (PSDF) in Wilsonville, Alabama for DOE's National Energy Technology Laboratory (NETL). The NCCC is the world's premier research and development (R&D) facility for cost-effective carbon dioxide (CO_2) capture technologies for use at coal and natural gas fired power generation and industrial facilities. With the completion of its construction in 2011, research is now underway to screen the more than 300 capture technologies already identified and to ensure development of those concepts most likely to be commercially successful. To accomplish this, the NCCC is collaborating with technology developers world-wide as well as industrial, utility, and fuel co-funding partners [1] and is bringing to the Nation a proven technology development business model at a scale that is more cost-effective than large demonstrations of single technologies. As the NCCC begins its first full year of operation in 2012, this partnership respectfully requests the support of the Congress for the fiscal year 2013 DOE budget request at the fiscal year 2012 enacted levels for the annual operating costs of its NCCC.

I would like to thank the Senate for its past support of the NCCC and request the subcommittee's continued support of the DOE's Fossil Energy R&D core budget. At a time when our country's economy is recovering, we need to assure continued utilization of domestically produced, low-cost, coal and natural gas based power generation. DOE's Fossil Energy R&D efforts have already produced significant results to advance coal-based power. DOE's core R&D budgets, combined with investments by the private sector assure a sustainable technology base on which to address the environmental and economic challenges facing coal and natural gas use in the future. Operation of the NCCC in partnership with DOE will benefit the Nation by developing cost-effective CO_2 capture technology for fossil-fueled power generation by teaming with technology developers and accelerating commercial deployment of viable technologies.

The NCCC's CO_2 capture efforts address all three areas of DOE's CO_2 capture goals concerning postcombustion capture for conventional plants, pre-combustion capture for coal gasification power plants, and advanced oxy-combustion processes which produce a more CO_2-rich flue gas than conventional combustion for easier CO_2 capture. Southern Company also supports the goals of the Clean Coal Technology Roadmaps developed by the Electric Power Research Institute (EPRI) and the Coal Utilization Research Council (CURC). These Roadmaps identify the tech-

[1] Current NCCC participants include Southern Company; the Electric Power Research Institute (EPRI); American Electric Power; Luminant; NRG; Peabody Energy; Arch Coal, Inc.; and Rio Tinto.

nical, economic, and environmental performance that advanced clean coal technologies can achieve over the next 25 years.

The NCCC offers a flexible applied R&D test facility which provides commercially representative flue gas and syngas and the necessary infrastructure in which developers' technologies are installed and tested to generate data for performance verification under industrially realistic operating conditions. This effort is a less costly way to bridge the gaps between fundamental R&D and more costly large-scale commercial demonstrations. By operating a unique, but central R&D test facility, available to all CO_2 technology developers, redundancy in testing sites and equipment is minimized and cost-effective use of R&D funds is achieved.

SUMMARY

The United States has historically been a leader in energy research. Adequate funding for fossil energy R&D programs, including environmental and climate change technologies, will provide our country with secure and reliable energy from domestic resources while protecting our environment. Current DOE Fossil Energy Research and Development programs, if adequately funded, will assure that a wide range of electric generation options are available for future needs. The Congress faces difficult choices when examining near-term effects on the Federal budget of funding energy research. However, EIA projects that coal will continue to fuel our country well into the future, and continued support for coal-based energy research will be essential to the long-term environmental and economic well being of the United States. Prior DOE clean coal technology research has already provided the basis for a 25-fold return in consumer benefits over research costs. To realize potentially even greater consumer benefits, the critically important R&D program in the CURC–EPRI Clean Coal Technology Roadmap must be implemented.

One of the key national assets for achieving these benefits is the NCCC. The fiscal year 2013 funding for the NCCC will provide operations, maintenance, and modification of the facilities to test technologies that are critical to the development of cost-effective climate change technologies that will enable the continued use of fossil fuels to supply a share of the Nation's energy needs. Any budget cuts in the DOE Fossil Energy Core R&D budget from the fiscal year 2012 enacted levels could proportionately impact the necessary work that will be conducted at the NCCC. A key NCCC feature is its flexibility to test new carbon capture technologies for power generation systems in an integrated fashion and under realistic industrial conditions. The NCCC can evaluate CO_2 capture technologies as they are integrated into actual syngas (from gasification) or flue gas from actual power plant operations. Integrated operation allows the effects of system interactions, typically missed in unintegrated, laboratory-based, component development programs, to be understood. This integration provided by the NCCC is the key to ensuring component technologies are validated before they can be designed into large scale industrial applications. Furthermore, the NCCC is large enough to produce data to support commercial scale designs, yet small enough to be cost-effective (compared to typical large-scale demonstrations) and adaptable to a variety of technology research needs. The major accomplishments at the NCCC/PSDF to date and the current test program planned by DOE and the NCCC's industrial participants are summarized below.

PRIOR ACCOMPLISHMENTS

The PSDF test-bed has operated successfully for many years in support of DOE's advanced coal program. The two significant achievements are:

—a new gasifier design (Transport Integrated Gasification (TRIG™)) suitable for use with low-rank fuels, which represent more than one-half of the total coal reserves in the United States and the world; and

—hot gas filtration to improve energy efficiency.

These two technologies have progressed to commercialization with integrated gasification combined cycle (IGCC) power plants being built at Kemper County, Mississippi, and Dong Guan, China. Other highlights of the test program included development of novel pressurized coal feed and ash removal systems, and sensors and controls automation improvements. In some instances, testing has eliminated technologies from further consideration. Such screening is valuable in that it concentrates R&D efforts on those technologies most likely to succeed and is an essential part of managing the U.S. DOE's financial resources.

NATIONAL CARBON CAPTURE CENTER CURRENT TEST PROGRAM

Building on success with TRIG™, the NCCC/PSDF facility has refocused its mission on supporting the development and scale-up of cost-effective, commercially via-

ble carbon capture technologies for fossil-fueled power plants through collaboration with the DOE and third-party technology developers. Most of the current CO_2 capture technologies are being developed at laboratory- or bench-scale under ideal conditions. Continued R&D under realistic field conditions are needed to validate laboratory results and identify technical issues that are not present under ideal conditions. In collaboration with technology developers, the NCCC makes available coal-derived syngas gas and flue gas to carry out applied R&D on components or small pilot-scale systems to bridge gaps between fundamental R&D and large-scale commercial demonstration. This provides for a cost effective, seamless transition for promising technologies to migrate from laboratory into commercial demonstrations. And importantly, NCCC postcombustion test results are applicable to both coal and natural gas applications, new and existing.

The NCCC is a unique applied R&D test facility containing two major sets of infrastructure to support CO_2 capture technology development:

—an existing pilot-scale coal gasification facility that produces syngas for pre-combustion CO_2 capture technology evaluation; and

—a Post-Combustion Carbon Capture Center (PC4) which enables testing of capture technologies on flue gas from an adjacent fossil-fueled power plant.

Both are readily adaptable to test a variety of technologies at multiple scales and using different coals, providing data for scale-up to commercial applications. This flexibility, in conjunction with real-world operating conditions, allows the NCCC to support developers in advancing the CO_2 capture technologies that are critical to continued use of fossil fuels for power generation. Jointly with the DOE, NCCC has developed a Technology Screening Process which is a key evaluation tool to assess and prioritize technologies for testing at the facility. Currently more than 300 carbon capture technologies have been identified as screening candidates.

Postcombustion.—Today's postcombustion capture technology has been estimated to increase the cost of electricity (COE) by up to 80 percent.[2] For both new and existing power plants, postcombustion capture technology must be made more efficient and cost-effective by reducing parasitic power and capital cost requirements. In postcombustion capture, CO_2 is separated from the flue gas in a conventional powerplant downstream of the boiler. Many postcombustion capture technologies need to be proven and integrated in an industrial powerplant setting. The PC4 test facility (completed in 2011) was built to accommodate tests of a wide-range of capture technologies from flue gas and includes three major test areas:

—a pilot solvent test unit (PSTU) to test developers' next generation CO_2 absorption solvents;

—a second test bay to support evaluation of fully integrated test systems supplied by technology developers; and

—a bench-scale test area to accommodate small tests of emerging, advanced technologies such as sorbents or membrane systems.

Initial testing at the PC4 began in 2011 when researchers conducted trials with monoethanolamine (MEA) solvent to be used as a baseline to evaluate the performance of advanced CO_2 capture technologies. Solvents being developed by Aker Clean Carbon and Babcock & Wilcox, as well as Membrane Technology Research's membrane-based technology, were also tested. Commitments are in place for the NCCC to provide other advanced technologies a scaled-up testing platform as development progress warrants.

Precombustion.—In precombustion capture, CO_2 is separated from the syngas produced by a coal gasification process, prior to the combustion of the syngas in gas turbine for power generation. CO_2 capture is estimated to increase the COE from an IGCC facility by more than 35 percent.[2] Reductions in both capital cost and power requirements of CO_2 capture processes are needed for development of efficient and cost-effective pre-combustion technology, and the NCCC is focused on achieving those goals. R&D activities at NCCC for pre-combustion capture include:

Advanced CO_2 Capture Systems.—New solvents, sorbents, and gas separation membrane technologies are being assessed on syngas and are being scaled-up and tested based on fundamental R&D progress by third-party developers.

Water Gas Shift Enhancements.—Water gas shift (WGS) catalyst test results have been conducted which reveal that parasitic steam consumption can be reduced, which in turn increases the net power output of an IGCC plant and reduces COE with CO_2 capture. Results have been supplied to catalyst suppliers and findings are being implemented at a commercial IGCC plant currently under construction. Testing of various WGS catalysts continues.

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[2] "Cost and Performance Baseline for Fossil Energy Plants, Volume 1: Bituminous Coal and Natural Gas to Electricity, Final Report"; NETL, May 2007.

Advanced Syngas Cleanup.—New advanced syngas cleanup systems are being tested for reducing hydrogen sulfide, hydrochloric acid, ammonia, and mercury to near-zero levels.

Oxy-Combustion.—The NCCC is also evaluating the potential benefits of oxy-combustion CO_2 capture using the pressurized transport reactor operating in oxygen combustion mode. Preliminary screening studies have produced favorable results. Detailed system studies, modeling and additional economic analysis are being conducted to evaluate the commercial feasibility of this technology.

Gasification.—In developing a cost-effective advanced coal power plant with CO_2 capture, the NCCC also evaluates opportunities to reduce cost for the entire plant in order to optimize the plant processes with the integration of the CO_2 capture processes. Some of these cost reduction opportunities include technology development for syngas cleanup, particulate control, fuel cells, sensors and controls, materials, and feeders.

CONCLUSION

The collaboration among DOE, technology developers, and private industry is allowing the National Carbon Capture Center to make significant strides toward the next generation of CO_2 capture technologies. These technologies hold the promise of reducing the costs of CO_2 capture to levels necessary to assure that affordable, reliable coal-based electric power can be produced for America's economy, while also meeting all of the environmental challenges associated with fossil fuel use. The Congress should sustain the DOE Fossil Energy R&D budgets at the fiscal year 2012 enacted levels.

PREPARED STATEMENT OF THE NATIONAL COMMUNITY ACTION FOUNDATION

The National Community Action Foundation (NCAF) represents the 900 local Community Action Agencies and their partner organizations that deliver the investments funded by the Department of Energy (DOE) Weatherization Assistance Program (WAP) in low-income homes. We urge the subcommittee to reject the President's fiscal year 2013 budget request for WAP in the Energy Efficiency and Renewable Energy (EERE) budget and, instead, provide $227.2 million for the fiscal year 2013 program. We also hope the regulation regarding the process for formula allocations will not be set aside as requested.

This figure, $227.2 million, is equal to the 2008 level; 2008 was the last program year before the massive, one-time expansion to create American Recovery and Reinvestment Act (ARRA) jobs was implemented. Our local members tell us that this is the minimum funding level for delivering a responsible and effective low-income residential efficiency program.

WAP should also continue to play its role as the "incubator" of effective practices for the gradually developing conventional residential efficiency upgrade market; although the administration and many in the Congress have encouraged new demand for conventionally financed home energy upgrades by those with credit and assets, that market and the practices of the firms serving it has not yet matured. To deliver a high-impact, well-managed, low-income program, and set benchmarks for performance, energy savings, and transparent oversight, Weatherization must maintain the worker training, cutting-edge equipment and software, and the skilled managers and monitors. DOE Weatherization remains a valuable national resource because it serves as a model for quantifying investments, verifying performance, and provides the benchmark energy audit tools, testing, and verification protocols

Energy Efficiency and Renewable Energy Budget Priorities.—First, we would like to address the issue of priorities in the EERE budget request. The request reflects a preponderance of research and development (R&D), of incentives and of some commercialization activities that, together, are intended to promote a "market transformation" in the near future and a technological transformation in the distant future. We believe the priorities demonstrated are impractical in general and unfair to a large part of the population. The lower priority which the budget gives to testing the results of building efficiency research as well as other research is a mistake. The results of the R&D that past years' appropriations have produced should be verified and moved to general use through deployment by real workers in real-world buildings. Further, offering taxpayer-financed incentives for consumers who can afford to invest in new homes and industry with credit to buy efficient equipment are only appropriate if a robust program can be maintained for the most inefficient of the millions of homes whose occupants lack the cash and credit to invest on their own.

Energy Efficiency and Renewable Energy Claims About Lower-Income Consumers' Borrowing.—Secretary Chu's testimony before this subcommittee on March 14 suggests that the DOE's request erroneously assumes that large numbers of low-wage working families and retirees will be served by the minimal program requested because new types of lending will be available to such consumers so that they may buy their own improvements. Madam Chairman, the Department analysts are poorly informed about the financial situation of the WAP-eligible households, all of whom have incomes far below the median income of their State. The problem is not that they lack credit, which most do; the problem is that they lack adequate resources and income flow to purchase even immediate necessities.

Minimum Program Capacity.—There is size and capacity threshold below which WAP can no longer function as an effective national program. It takes funding at least the level size of the 2008 pre-ARRA program to run a WAP that has trained, skilled, and well-equipped workers, with even more experienced energy auditors and with local and State inspectors checking and directing their work.

As the subcommittee is well aware, the 2008 funding level we are requesting represented a drop from the program's resources a few years earlier. For some States, it meant less than a full-time monitor for the entire State and is still inadequate; however, our local members want you to know that. Given a similar core program, they are committed to finding enough additional partners with resources to serve every county in the Nation; however, with less to build on, they will not be able to offer utilities, building owners, and other investors the certainty of a well-trained, well-equipped workforce whose work will be backed by both local and State quality assurance. With the foundation of funding at the pre-ARRA period level, $227.2 million, community action will expand or develop partnerships with States; housing, economic development and public health organizations; utilities; and all manner of other local partners to create a robust and diversified portfolio of resources delivered as single, customized packaged to the dilapidated older homes on their waiting list.

Maintaining a Nationwide Program and Formula.—At the proposed funding level, some States' formula allotments are particularly inadequate. Moreover, the administration requested a renewal of the one-time authority the subcommittee provided for 2012 which allows the Secretary to establish a formula without benefit of public regulatory process as required by law. We believe the subcommittee was wise to allow it in 2012 when information about uncosted balances was relevant and remained closely held by the Department. However, we believe it would be a major mistake to set aside the statute a second year in a row. It has turned out that the Department's information flow from States about uncosted balances was flawed at both ends. High-performing States now face imminent close-out of services, while other States are still catching up to large balances but received 2012 funds. More important, States must plan far ahead to match legislative and budgetary requirements; more instability in the WAP system will not contribute to good performance.

Significant Private Partnerships Depend on the Programs' Competence and Transparency.—In 2008, the leveraged resources, including Low-Income Home Energy Assistance Program (LIHEAP) dedicated funds and nearly as much from private utility partnerships, amounted to almost three times the Department of Energy Weatherization Assistance funding the Congress provided. The reason partners turned funds over to Weatherizers to deliver on low-income communities was the robust Federal program foundation that gave local and private investors the confidence to allow their resources to be combined with Weatherization delivery. Federal standards, training, procedures, and oversight requirements, including financial, assure our partners that their funds go where they intend, that homes will not receive two or three different kinds of evaluations and measures, that their jobs will be inspected, and that there will be transparent accounting of each kind of funding at the end.

Proven Capacity Should Not Be Wasted.—As Secretary Chu testified to this subcommittee, the program delivered investments and ARRA jobs at a dramatically higher scale than predicted, surpassing its total production goal last year, coming in under budget and ahead of the schedule planned. Weatherization ranked second in job creation last quarter. Now our production is at about 100,000 more homes than planned for delivery—700,000—and a number of States are still delivering homes.

NCAF is certainly aware of the delivery problems that affected a few of the recipients of the ARRA Weatherization expansion in a few of the States represented on the subcommittee. Our organization worked closely with DOE to raise quality and performance among our members. We are confident these efforts worked, and we stand behind the Secretary of Energy's testimony to several committees, including most recently the Committee on Oversight and Government Reform (3/20/2012) that serious problems existed in only 3 percent of the homes that have been weatherized

since 2010. All of these cases are being resolved, at no further taxpayer expense, by the responsible parties.

Worker Skills and Standards.—Community Action is exceptionally proud of the training it provided and the meaningful jobs organizations filled with more than 20,000 construction industry workers, all of which added up to between 14,000 and 16,000 full-time jobs per quarter until major layoffs began this past winter as ARRA funds were exhausted. There is still considerable work to do using prior year funds or ARRA in many States for at least the next 6 months. After that, fewer and fewer States will be able to sustain their workforce, their quality control, and their State oversight through the end of the 2012 fiscal year.

The Weatherization Program leaders and field experts have worked for 2 years with to develop definition of retrofit worker jobs skills, the training required to achieve such DOE skills, and formal work specifications for all key tasks involved in retrofitting residential buildings of all types. Together with others in the emerging industry, we have developed a yet-to-be implemented credentialing hierarchy which could transform the sector of the building trades that has been delivering energy retrofits in conjunction with housing upgrades without benefit of common definitions and skill specifications.

Industry Training Capacity Is Built With Weatherization Assistance Program Funds.—Weatherization has a network of tested of training centers which serve not only the public sector program but also the utility industry. Among the most distinguished is Montana State University. NCAF was fortunate to be able to contribute funding (which the Exxon-Mobil Corporation generously donated to us) to underwrite a unique initiative in Montana that produced hours of video and other online training built by these legacy centers and several partners in higher education. These videos are now available nationwide to introduce the industry to potential workers and to train those in the field in a number of the required skills. It also resulted in models of developing new small businesses to provide high-quality energy audits in rural America in Oregon and in Virginia. Many of the others have others have recently contributed to the intellectual capital and training tools for the entire industry.

Worker and Contractor Access to Opportunity and Training.—It is a great accomplishment that tens of thousands of newly unemployed workers have left the program with skills and credentials they would never have gained were it not for their experience with the ARRA Weatherization program. The Weatherization program has served as an employment "gateway" to future opportunity for homebuilding industry workers who came in with only conventional skills, including many workers who were considered "nontraditional" in the construction field. The administration's inadequate request means this door slams shut.

CONCLUSION

We urge you not to accept the administration's request; it represents the endstage of access to Weatherization assistance for lower-income families; within a very short period such low funding would also spell the end of utility-community partnerships that assure skillful delivery of coordinated investments.

We hope the subcommittee will take a different direction and continue to build on the firm foundation that already exists for WAP by allocating $227.2 million in fiscal year 2013. Thank you for considering our concerns.

PREPARED STATEMENT OF THE NATIONAL CONSUMER LAW CENTER

The National Consumer Law Center (NCLC) is a nonprofit organization which, during its 35 years of existence, has advocated for policies that assist low-income families and seniors who struggle to pay their energy bills. NCLC strongly recommends that the Senate approve a funding level for the low-income Weatherization Assistance Program (WAP) of $250 million for fiscal year 2013.

Because low-income families often live in older and poorly weatherized homes,[1] they tend to consume more energy than absolutely necessary. Living in poorly

[1] According to data from the U.S. Energy Information Administration, 2005 Residential Energy Consumption Survey, 40 percent of households at or below 100 percent of the Federal poverty level lived in housing units constructed before 1960. Less than 30 percent of households living above the poverty level lived in housing constructed prior to 1960. Housing constructed before 1960 was not subject to the stricter energy codes that apply to more recently constructed housing. In addition, newer construction is more likely to use newer, more energy-efficient heating, cooling, lighting, and refrigeration equipment.

weatherized houses leads to higher energy bills and places these families at much greater risk of having their utility services terminated for non-payment.[2] Families can find themselves without adequate heat in the winter, without lights, or without the ability to prepare food, simply because their energy bills are exorbitantly high.[3] At the extreme, house fires can result when families lose access to gas, electricity, or delivered heating fuels and instead resort, out of desperation, to unsafe heating sources and the use of candles.[4]

Over the past 3 years, WAP has helped 860,000 households to reduce their energy bills,[5] while also increasing the comfort and health of those living in those homes.[6] Weatherization generally decreases energy usage—and energy bills—an average of 25 percent (with a wide variation above and below that average).[7] DOE estimates that the average household's annual heating bill will be reduced by $437 as a result of receiving weatherization.[8]

Over those same 3 years, many States across the country have built up the infrastructure to reach far more low-income homes each year than before ARRA appropriated $5 billion for WAP.[9] Under ARRA, States received approximately $1.6 billion per year over a 3-year period. Prior to that, annual funding for the program was between $224 million and $243 million in all but 1 year since fiscal year 2002. States not only increased the number of households served several fold, but also had to bring on new contractors and make sure new employees were properly trained.

Choosing Massachusetts as one example, the State received approximately $5 million annually in the years immediately prior to ARRA. Under ARRA, the State will spend out its entire $125 million grant from DOE. Spending has increased eight fold on an annual basis. While the initial production goal was to weatherize approximately 17,000 units, the State will actually weatherize 20,000 units. The quality of the weatherization work has been closely monitored by the local nonprofits that retain the weatherization contractors and by the State Department of Housing and Urban Development. In addition, auditors from the Massachusetts Office of the Inspector General, from the Federal Department of Energy, and from the Massachusetts Recovery and Reinvestment Office have all monitored the program more closely than in any year prior to ARRA, and found no instances of shoddy workmanship or financial fraud or mismanagement.[10] Massachusetts has also helped develop a training pipeline for those interested in working within WAP and, more broadly, in the green energy field.[11]

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[2] Electric and natural gas service disconnection rates are much higher in low-income households than middle- or high-income households. In California, for example, the low-income disconnection rate in 2010 was 5.5 percent, compared with 2.9 percent for non-low-income households. (CA Division of Ratepayer Advocate, "Status of Energy Utility Service Disconnections in California", March 2011, p. 2.)

[3] 2011 National Energy Assistance Survey Summary Report, National Energy Assistance Directors' Association, Nov. 2011. Available at www.neada.org.

[4] John R. Hall, Jr., Home Fires Involving Heating Equipment (January 2010) at ix and 33. Also, 40 percent of home space heater fires involve devices coded as stoves.

[5] Testimony of DOE Secretary Steven Chu Before the Committee on Oversight and Government Reform, U.S. House of Representatives, March 20, 2012, p. 3.

[6] Various studies have shown that weatherization can result in reductions in a range of health problems, including asthma and bronchitis. See, e.g. National Center for Healthy Housing/Enterprise Community Partners, Inc., "Case Study: Creating Green and Healthy Affordable Homes for Families Living at Viking Terrace, Worthington, Minn." (2010). That study showed significant declines in bronchitis, sinusitis, and asthma (in adults) and respiratory allergies and ear infections (in children) following renovations that employed "green and healthy" principles.

[7] L. Berry & M. Schweitzer, "Metaevaluation of National Weatherization Assistance Program Based on State Studies, 1993–2002" (Oak Ridge National Lab, RNL/CON–488). Ex. Summ., p. x. The authors found that WAP achieved energy savings in gas-heated households of 21.9 percent of the average pre-weatherization consumption of natural gas for all end uses and 30.8 percent of pre-weatherization space heating consumption.

[8] U.S. Department of Energy, Weatherization Assistance Program, http://www1.eere.energy.gov/wip/wap.html (last updated January 30, 2012).

[9] The American Reinvestment and Recovery Act (ARRA), Public Law 111–5, section 2, division A, title IV, 123 Stat. 138.

[10] According to the Massachusetts Department of Housing and Community Development (DHCD), the State grantee of the Federal WAP funds, DHCD has met with the State Office of Inspector General (OIG) twice for formal interviews and with DOE WAP monitors four times during ARRA. The State OIG has also visited all of the State's WAP subgrantees. Despite this close monitoring, no instance of fraud has been identified nor have any "significant findings" been made. Rather, the Massachusetts WAP network has been praised by its DOE monitoring team for "operat[ing] as a strong cohesive unit with good internal and external support." DHCD has also been cited for taking a "measured, prudent approach to preparing for the ARRA Weatherization Program".

[11] The Bureau of Labor Statistics (BLS) recently issued a report, "Green Goods and Services Summary" noting that in 2010, "3.1 million jobs in the United States were associated with the

While no one expects that the Congress will fund WAP in fiscal year 2013 near the ARRA level of approximately $1.6 billion per year, NCLC calls upon the Senate to recommend a funding level that will ensure that the funding is adequate to maintain a network of agencies that can deliver high-quality weatherization services and achieve substantial energy savings in each home served. We believe that funding below $227 million, the level in fiscal year 2008, would completely fail to meet that goal. We urge the Senate to appropriate no less than that amount, and strongly recommend an appropriation of $250 million. Even at a $250 million level, virtually all States will have to substantially dismantle the infrastructure that they successfully built up over the past 3 years. State agencies across the country will be serving far fewer households than in any of the past 3 years, leaving many needy and eligible households literally and figuratively in the cold. The network of contractors and workers who now possess the skills this country needs to help us move towards a cleaner and greener energy future will find itself without work.

The Congress must recognize that below the pre-ARRA funding level, funding for WAP can be so low that States will not have the minimum amount necessary to adequately oversee and deliver weatherization services. There is a threshold below which States will not have the resources to provide the financial oversight and training that is needed to run a high-quality program, as well as actually providing the funding local agencies need to carry out the weatherization work. Moreover, as funding levels fall, States will likely reduce not only the number of households served, but also the number or level of energy efficiency measures delivered to each home, leaving the full weatherization work that the house needs incomplete.[12]

This country is still in the grips of a serious economic downturn that leaves fully 1 in 12 Americans unemployed.[13] Moreover, the nominal unemployment rate (8.3 percent) excludes the more than 1 million workers who the Bureau of Labor Statistics counts as having given up looking because they are convinced the jobs just are not out there,[14] well more than double the number of discouraged workers in 2008. According to a Pew Fiscal Analysis Initiatives report, 4 million workers (more than the entire population of Oregon) were unemployed for 1 year or longer, as of December 2011.[15] Hard-working families who have been trying their hardest but are still unable to get work need the assistance of the Federal Government to get their energy bills down to more affordable levels. This is precisely the wrong moment to cut back too far on this much-needed program. Cutting back too deeply on WAP will also lead to substantial layoffs among the weatherization workforce at a moment when this country needs to build the green workforce. In the last quarter of 2011, as reported in January 2012, WAP ranked second among 200 Federal ARRA-funded programs in terms of job creation.[16] WAP not only reduces energy bills for low-income households, but creates good jobs and helps build local economies.

In summary, NCLC strongly recommends that the Senate approve a funding level for WAP of $250 million for fiscal year 2013.

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production of green goods and services," comprising "2.4 percent of total employment in 2010." Green jobs (including "weatherizing and retrofitting projects that reduce household energy") now make up 6.8 percent of construction jobs, according to the BLS report, available at: http://www.bls.gov/news.release/ggqcew.htm.

[12] This has been true historically: many homes weatherized pre-ARRA were only partially weatherized due to lack of funding; most States chose to reach more households rather than fully weatherize a smaller number of homes. For this reason, the Congress allows homes partially weatherized before 1994 to receive additional weatherization services. 42 U.S.C. 6865(c)(2). Post-ARRA, it is likely that a large percentage of households served by WAP will once again be only partially weatherized.

[13] Bureau of Labor Statistics, "Unemployment Rate", available at: http://data.bls.gov/cgi-bin/surveymost (accessed March 22, 2012).

[14] Bureau of Labor Statistics, "Not in Labor Force", available at: http://data.bls.gov/cgi-bin/surveymost (accessed March 22, 2012)

[15] Pew Economic Policy Group Fiscal Analysis Initiative, "Five Long-Term Unemployment Questions" (February 1, 2012), question 1.

[16] Recovery.Gov, "Track the Money", available at: http://www.recovery.gov/Pages/TextView.aspx?data=jobSummaryProgram&topnumber=200&qtr=2011Q4 (accessed March 22, 2012).

PREPARED STATEMENT OF THE NATIONAL HYDROPOWER ASSOCIATION

The National Hydropower Association (NHA)[1] appreciates the opportunity to submit this statement on the Association's priority programs within the Energy and Water Development Appropriations bill. The statement focuses on NHA's support of $59 million for the Department of Energy's (DOE) Water Power Program and its research and development (R&D) fiscal year 2013 initiatives. The Water Power Program dedicates its efforts to research, test, and develop breakthrough technologies and other sector innovations to increase generation of renewable, reliable, and affordable electricity from water resources.

This statement also provides support for two other areas:

—additional funding to increase hydropower generation on the Federal system (Army Corps of Engineers and Bureau of Reclamation facilities); and

—funding for the Energy Policy Act of 2005 (EPAct 2005) hydropower incentives.

NATIONAL HYDROPOWER ASSOCIATION REQUESTS $59 MILLION IN FISCAL YEAR 2013 FUNDING FOR THE DEPARTMENT OF ENERGY WATER POWER PROGRAM

Funds should be directed with continued support of initiatives across all hydropower technology sectors. The types of technologies covered—conventional hydropower, pumped storage, marine and hydrokinetic (MHK), and conduit technologies—unlock clean energy from our country's rivers, oceans, tides, and water conveyances.

In recognition of the tremendous constraints on the Federal budget, NHA's proposed fiscal year 2013 level of $59 million represents no increase over the congressionally adopted fiscal year 2012 level and is a significant reduction from recent NHA requests. The Association also supports the fiscal year 2012 funding breakdown of $25 million directed to hydropower and $34 million directed to MHK.

MAKING THE CASE FOR FEDERAL RESEARCH AND DEVELOPMENT SUPPORT

Over the last 30 years, the Department of Energy's R&D budget for all energy technologies (renewable, fossil, and nuclear) has declined precipitously.[2] For the Water Power Program, the numbers are even more discouraging. Always one of the smallest of the Office of Energy Efficiency and Renewable Energy programs, in 2007–2008 the Water Power Program was zeroed out. The administration's fiscal year 2013 budget request would now cut funding by 66 percent.

Federal Government R&D support is needed to promote hydropower development nationwide. Conducting business as usual will not provide the opportunity to fully realize the untapped potential available throughout the country.

For MHK technologies, the R&D need is easy to demonstrate. The United States lags far behind Europe in its investment to harness ocean energy potential. While strides are being made, there are few actual U.S. MHK projects, and those in existence are at early-stage commercialization and deployment.

However, for conventional hydropower technologies, the R&D case is no less strong and the need no less urgent. Some argue hydropower is a "mature" technology and not a candidate for R&D support particularly in a constrained budgetary environment. This is a false choice.

Though a proven, reliable technology, hydropower owners, and operators are always seeking ways to increase generating efficiencies, improve water use, enhance environmental performance, and develop better operating regimes. And now the industry looks to address new issues resulting from the ever-changing electricity market and the challenges posed by integration issues and grid reliability concerns.

Hydropower, like the automobile, is a technology that has transformed over the course of a century. No one argues that the government should stop investing in auto R&D—improving fuel efficiency and economy, safety, incorporating new materials, et cetera. The same holds true for continuing advancements in the hydropower sector. Since the re-establishment of the Water Power Program in 2008, the Department of Energy has begun several initiatives across the sector. These include:

—Assessing resource potential (MHK, nonpowered dams, conduits);

—Reducing the cost of energy;

—Advancing technology readiness (new turbine designs for conventional, MHK and conduit applications, as well as other equipment and operational improvements);

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[1] NHA is a nonprofit, national trade association dedicated to promoting the Nation's largest renewable electricity resource and advancing the interests of the hydropower, pumped storage and new ocean, tidal, conduit and in-stream hydrokinetics industries.

[2] 2006 GAO Report: "Key Challenges Remain for Developing and Deploying Advanced Energy Technologies to Meet Future Needs" (GAO–07–106).

—Ensuring environmental responsibility (technology advancement to analyze and mitigate potential impacts);
—Quantifying hydropower's value to the grid (determining how to increase the use of wind and solar through greater grid flexibility and stability utilizing hydropower for integration); and
—Advancing hydropower upgrades (analyze, assess and maximize generation at existing facilities).

It is these types of initiatives and strategies that will propel the hydropower and MHK industries forward, enhancing their contribution to the Nation's electricity portfolio.

DEPARTMENT OF ENERGY WATER POWER PROGRAM GOAL: 15 PERCENT OF ELECTRICITY FROM WATER RESOURCES

NHA commends and supports the DOE Water Power Program's new vision for water power technologies to provide 15 percent of the Nation's energy by 2030.[3] Like the goal established to support increased wind generation, this is a fitting goal and one that recognizes hydropower's role in achieving our country's push to substantially increase clean-energy generation over the next 20 to 30 years.

Ultimately, for clean-energy policies to succeed, support for increasing generation from all water power resources, conventional, pumped storage, and MHK, is critical.

Not only does increasing hydropower generation provide more clean energy megawatts to the grid, but it also increases the amount of grid reliability, stability, and integrations services that hydropower provides in order to enhance the penetration of variable energy resources.

This is yet another area where Europe leads the United States. Experience on the continent has clearly shown that increasing variable energy generation requires access to energy storage. And that demand in Europe is being met with storage from both conventional hydropower and pumped storage projects.

NHA believes the hydropower industry is primed for growth to provide these services; and this leads to an important R&D discussion. While hydropower and pumped storage projects can provide regional and grid-scale energy storage and other ancillary services, doing so will require projects to operate in new ways and modes, and in some cases, utilize new technologies.

As such, several R&D questions (ones that the DOE is positioned to help answer) include:

—What is the impact of wear and tear on existing technologies due to new operational regimes to provide the needed ramping rates and other integration services?
—Does the United States have the technology in place to meet this challenge?
—Is there new technology better suited for this purpose? If so, where? If not, what innovations are needed in components, equipment, facilities to improve performance?

As more is asked of the hydropower system to provide the ancillary services needed to meet clean-energy goals, more questions and R&D needs are sure to come into focus. The DOE Water Power Program will fulfill a crucial role in collaborating with the industry to make this transformation a reality.

OTHER SPECIFIC RESEARCH AND DEVELOPMENT NEEDS

Over the last several years, NHA, the Electric Power Research Institute (EPRI), and individual industry members have provided many recommendations for needed data, analyses, research initiatives, and other activities that would help to realize the full potential of the water power sector.

While the following section briefly touches on some of those recommendations, the larger point is that a robust DOE Water Power R&D program is needed. With an industry consisting of facilities owned by: Federal agencies; investor-owned utilities; municipalities and other public power entities; independent power producers; along with new technology developers; the DOE plays an important role in gathering national baseline industry data and serving as a clearinghouse for this information.

Past R&D recommendations included, but are not limited to:

—Advanced materials testing/science for turbines, generators, and other components;
—Meteorological forecasting and optimal dispatch of energy/water systems;
—New turbine designs (including distributed generation applications) and operational regimes;

[3] DOE Wind and Water Power program brochure: "Water Power for a Clean Energy Future" (p. 2) http://www1.eere.energy.gov/water/pdfs/wp__accomplishments__brochure.pdf.

—Enhanced water quality mitigation technology; fish passage bioengineering and mitigation;
—Study on potential effects of climate change on operations; and
—Updated resource assessments.

SUPPORT FOR INCREASED HYDROPOWER DEVELOPMENT AT FEDERAL FACILITIES

NHA also supports funding efforts within the Army Corps of Engineers Civil Works Programs as well as at the Bureau of Reclamation to operate, maintain, and upgrade their existing hydropower projects and build on their existing non-powered infrastructure.

NHA specifically supports the work of the Corps on its Hydropower Modernization Initiative (HMI) to develop a long-term capital investment strategy. NHA also hopes that both Federal agencies will continue to dedicate resources and staff time to standardize and streamline their permitting responsibilities. Projects that can be developed on Federal facilities are often too-longed delayed to realize the significant energy potential due to the inconsistent support of hydropower development and approaches to working with industry members by agency staff at the local level.

SUPPORT FOR THE FEDERAL HYDROPOWER INCENTIVES OF THE ENERGY POLICY ACT OF 2005

In EPAct 2005, the Congress established incentive payments—subject to congressional appropriations—for the development of new hydropower at existing dams or conduits as well as to increase efficiency of existing hydropower facilities. To date these provisions have not received funding.

NHA supports the provisions, and notes that at the time of passage, new projects in the hydropower industry were rare. Since EPAct 2005, the industry has seen a dramatic increase in interest and support for new development. In 2011 alone, the Federal Energy Regulatory Commission (FERC) issued 135 MW of project approvals and saw more than 1,600 MW of projects file for approval.[4] These incentives could help bring projects like these online in the coming years.

HYDROPOWER'S ROLE IN AMERICA'S ENERGY PORTFOLIO AND GROWTH POTENTIAL

Hydropower is America's leading source of domestic renewable electricity, providing clean, affordable generation in every region of the country. This reliable and underutilized resource accounted for about 8 percent of total electricity generation and two-thirds of renewable electricity generation in 2011.

Hydropower generation avoids approximately 200 million metric tons of carbon emissions each year. In fact, regions that rely on hydropower as a primary energy source reap the benefits of significantly cleaner air as well as the lowest electricity prices.

While a proven renewable energy resource, hydropower is also an energy resource for our future with tremendous growth potential. One of the many myths about hydropower is that there are no new opportunities for growth in our industry. In fact, the opposite is the case. In addition to the numbers cited above, there are proposed projects totaling more than 82,000 MW before FERC today across all technologies in the waterpower sector.[5]

CONCLUSION

Unlocking the vast hydropower potential of our rivers, oceans, tides, and conduits requires Federal R&D initiatives that make innovative ideas a reality. Continued investment in the DOE Water Power Program will ensure that innovative new technologies and operational advancements come to market, increasing America's clean-energy portfolio and providing the economic benefits and jobs the country needs. With the potential to develop new projects on hundreds of potential sites, hundreds of thousands of jobs will be created through the manufacturing and installation of these projects.

NHA appreciates and strongly supports the work of the Water Power Program and opposes the proposed 66 percent reduction in funding in the fiscal year 2013 budget request. NHA calls upon the Congress to champion R&D investment in hydropower—the Nation's most widely used renewable energy resource that, if properly supported, can provide the foundation of America's clean-energy future.

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[4] http://hydro.org/wp-content/uploads/2012/01/OEP-Energy-Infrastructure-Update-Dec-2011.pdf.

[5] http://www.ferc.gov/industries/hydropower/gen-info/licensing.asp.

PREPARED STATEMENT OF NATIONAL INSULATION ASSOCIATION AND INTERNATIONAL ASSOCIATION OF HEAT AND FROST INSULATORS AND ALLIED WORKERS

FEDERAL FUNDING FOR MECHANICAL INSULATION WILL CREATE IMMEDIATE GREEN ENERGY JOBS WHILE SAVING ENERGY AND PROTECTING THE ENVIRONMENT

Chairwoman Feinstein, Ranking Member Alexander, and members of the Subcommittee on Energy and Water Development: on behalf of the National Insulation Association (NIA) and the International Association of Heat and Frost Insulators and Allied Workers (International Union), we are writing in support of a programmatic increase of $500,000 in fiscal year 2013 for the Department of Energy's (DOE) Advanced Manufacturing Program specifically to continue and expand their a national mechanical insulation education and awareness program.

NIA represents 95 percent of the products utilized in the mechanical insulation industry, with members across the country at 800 corporate locations, and the International Union represents more than 25,000 workers and families employed in the mechanical insulation sector across the country. Together, our members, of which the vast majority are small businesses, have more than a century-long track record of providing large- and small-scale, long-term energy efficiency, emissions reductions, cost savings, and safety benefits at manufacturing facilities, power plants, refineries, hospitals, universities, and government buildings across the country.

We have joined together to advocate for a national comprehensive advocacy program for increased use, maintenance, and retrofits of mechanical insulation in the commercial and industrial sectors because of its potential to create tens of thousands of jobs now, reduce carbon emissions, increase energy savings, and provide a safer working environment.

Buildings are responsible for 40 percent of U.S. energy demand and 40 percent of all greenhouse gas emissions, making efficiency gains in this area crucial if we are to markedly reduce America's energy consumption and effectively combat climate change. The industrial sector is similar in energy efficiency opportunities. At the residential level, insulation is well publicized for its efficiency benefits. However, the same cannot be said in the commercial and industrial sectors, which together consume 2½ times more energy than homes, according to the Energy Information Administration (EIA). Commercial and industrial insulation—collectively known as mechanical insulation—has the potential to slash the energy demand for the building and industrial sector.

The Congress has already signaled its support for a mechanical education and awareness program through both the appropriations and authorization process. The Congress directed $500,000 be allocated in DOE's budget for a mechanical insulation education and awareness campaign in the fiscal year 2010 Energy and Water Development Appropriations bill (Public Law 111–85). This funding was a critical start, and we thank members of the Appropriations Committee for recognizing the value of this program, but more is needed to carry out a successful campaign. Further evidence of the Congress's support for such a program is the inclusion of language to authorize a 5-year, $3.5 million a year national industrial energy efficiency education and training initiative focused on mechanical insulation in H.R. 2454, the American Clean Energy and Security Act of 2009 (section 275, page 521).

By increasing awareness and use of this energy-saving technology, the Congress will both create jobs now and reduce carbon emissions. Creating jobs, particularly green jobs, is a top priority for the Congress and the administration. Using government data, NIA conservatively estimates that maintenance of insulation at manufacturing facilities and going beyond minimum levels in new construction can generate $4.8 billion in energy savings per year, reduce 43 million metric tons of carbon dioxide and other greenhouse gas emissions, and create 89,000 jobs annually.

Best of all, these jobs don't require additional research and development. Mechanical insulation opportunities can be easily identified, with potential energy savings and emissions reduction determined with proven DOE-utilized software technology, and in many applications implemented in weeks, making projects truly shovel-ready.

For facility owners and operators, the savings are swift and sustainable; the return on investment from mechanical insulation is typically less than 2 years (and sometimes as little as 6 months). Mechanical insulation also improves infrastructure in the public, educational, and healthcare sectors, among others.

Fiscal year 2013 funding for mechanical insulation education programs is insufficient to make an economic impact in the industrial and commercial sector through energy savings, emissions reduction, and job creation. Increased funding from the Congress in fiscal year 2013 would enable Federal agencies and industry partners to gather more data, work with engineering schools, and reach out to facility man-

agers and owners, engineering and design professionals, and others to educate them about the benefits of increasing their focus on the benefits of mechanical insulation technology. Congressional funding would also ensure the promotion of the most energy-efficient uses of mechanical insulation in new construction, increased education about the energy savings that can be realized through proper maintenance and a renewed focus on retrofitting mechanical insulation in older buildings and manufacturing facilities that together will generate substantial carbon emissions reductions and sustainable jobs.

NIA and the International Union have cumulatively contributed $3 million in developing and beginning the implementation of the campaign and are full partners with the Energy Department in carrying out meaningful elements to prove and encourage the greater use of mechanical insulation made possible by $500,000 in fiscal year 2011 funding appropriated by this subcommittee and enacted into law. As such, we have outlined proposed program elements to continue our comprehensive, persuasive awareness campaign to engage and motivate industrial and commercial decisionmakers to take action.

Elements of the program would include:

Education and Awareness

Mechanical Insulation Basics and Energy Assessment Process:
—DOE Industrial Assessment Centers.
—Engineering, HVAC, and Mechanical Design Schools.
—Inspection and Code Officials.
DOE and Other Tool Utilization (Facility Management and Design Professionals):
—Simple Calculators.
—E-Learning Modules.
—3E Plus®.

Tool Development

Mechanical Insulation and Energy Modeling Programs.
Building Simulation Programs—The Role of Mechanical Insulation.
Mechanical Insulation—HVAC Energy Calculator.
App development of simple calculators.

Data Development

Energy, Environment and Cost Reduction Impact Analysis of Mechanical Insulation:
—Federal agency facilities.
—Armed force facilities.
—Manufacturing sectors.
—Healthcare facilities (hospitals and medical facilities).
—Education (schools and universities—colleges).
—Underground—District heating applications.
Energy and water conservation i.e., Energy—Water nexus.

Research

Materials—Systems:
—New technologies.
—Energy impact comparison on an equivalent basis (including aging) Inclusive of All Mechanical Insulation Type Applications.
—Lifecycle analysis by product group.
—Impact of duct liners and exterior duct wrap on air leakage—Energy efficiency.

NIA, its members, and the International Union are committed to working with the Congress, DOE, other Federal agencies, and key stakeholder groups on these and other initiatives that will lead to greater energy efficiency nationwide. We have formed alliances with engineering and other industry trade organizations and have offered to work with DOE to bring together a coalition to help develop, implement, and provide educational awareness programs established and funded by the Congress.

Thank you for the opportunity to submit testimony in support of a program that is critical to job creation, economic growth, energy savings, and emissions reductions.

PREPARED STATEMENT OF THE NATIONAL RESEARCH CENTER FOR COAL AND ENERGY

Dear Chairwoman Feinstein and Ranking Member Alexander: Thank you for the opportunity to submit our testimony in support of the programs of the Office of Fossil Energy, Department of Energy (DOE) for fiscal year 2013.

INTRODUCTORY COMMENTS

The Office of Fossil Energy programs address two of our Nation's key energy needs:

—Technologies for meeting our current demands for electricity; and

—Ensuring our supplies of petroleum and coal-derived fuels for our transportation, industrial, and residential sectors.

Coal technologies provide more than 40 percent of our electricity generation and are prominent in industrial applications for generating process heat. The control of criteria pollutants and technologies for the management of carbon emissions are important coal programs for protecting our environment, a challenge that becomes increasing complex as our Nation has legislated tighter limits on our energy-generating processes. Electricity generation based on natural gas fuels, currently providing 26 percent of our electricity generation, relies on components such as gas turbines and fuel cells and on emissions control technologies that were developed under the Fossil Energy program.

However, despite the prominence of fossil fuels in our national energy mix for the present and for the foreseeable future, funding for Fossil Energy programs has been reduced dramatically over the past several years. Based on the fiscal year 2013 recommendations of the administration, overall funding for civilian energy programs would increase by 6 percent compared to fiscal year 2011 enacted funding. However, Fossil Energy, which impacts the vast majority of our energy extraction and utilization activities, would suffer a program reduction of 31 percent. Given our national goal of being more efficient in using our energy resources and being less dependent on imported energy, we recommend that Fossil Energy should be funded at $634 million for fiscal year 2013. Specific recommendations are provided in the Funding Recommendations section.

BENEFITS OF INVESTMENT IN FOSSIL ENERGY RESEARCH

Our Nation has benefitted from investments in fossil energy research. In a study conducted by the National Research Council (NRC) covering the period from 2000–2020, the NRC concluded that investments in coal research, estimated to be around $9 billion in 2010 constant dollars, would return around $14 billion in Federal tax revenues, a ratio of 1.6:1. Related, but incomplete, studies for natural gas show that our cumulative investment of $352 million from 1978–1999 in coal bed methane, tight gas, and shale gas research have returned cumulative benefits of $13.13 billion by 2010, a ratio of 37:1. We recommend that the Congress conduct a more thorough study for natural gas as was done by the NRC for clean coal technology programs.

In addition to the financial benefits to the U.S. Treasury, our economy benefits from reduced costs for energy. Programmatic funding supports jobs distributed over every State in our Nation. Research done by our university sector provides workforce training for our current and future fossil energy technology needs.

FUNDING RECOMMENDATIONS

Core Coal Research Programs

The core coal research program consists of a suite of projects in carbon management, the development of advanced energy systems, and cross-cutting research that provides new ideas for both making meaningful evolutionary improvements to present technologies and for developing new, revolutionary technologies that can be game-changers in our energy portfolio. These programs cover the environmental, economic, and efficiency aspects of energy.

We recommend that funding for the core coal research program be maintained at or above $404 million, a level of funding that has been supported in the past (fiscal year 2010) and is both achievable and necessary for an effective fossil energy research program. Subprogram elements would be distributed as follows:

Carbon Capture ($85 Million).—Most of the increase ($16 million) should be directed to existing plants (postcombustion capture) since existing plants will contribute the major portion of electricity generated from coal-based units for the next 20 years. Funds should also be increased for developing advanced (revolutionary) technologies to reduce the cost of capture and for large pilot scale testing to validate the effectiveness of proposed capture technologies.

Carbon Storage ($114 Million).—Most of the increase in this subprogram should be directed to carbon reuse technologies to use captured CO_2 from power plants for enhanced oil recovery (EOR), a cost-effective way of storing CO_2 in depleted oil reservoirs while simultaneously increasing our production of petroleum to reduce our imports of foreign oil.

Advanced Energy Systems ($145 Million).—Funding increases should be directed toward advanced combustion systems (+$25 million), advanced gasification systems (+$10 million), hydrogen turbines (+$19 million), coal and biomass to fuels and chemicals (+$10 million), and fuel cells (+$25 million).

Cross-Cutting Research ($60 Million).—Increases are recommended for plant optimization (+$16 million), computational modeling (+$5 million), and technical and economic analyses of new plants (+$7 million). Particular emphasis is recommended for polygeneration applications and advanced design plants.

Natural Gas, Oil, and Unconventional Fossil Energy Technologies

We recommend an increase of $23 million for the natural gas program and $10 million for the oil/unconventional fossil energy technologies program. Funding would be allocated as follows:

Natural Gas Technologies ($25 Million).—Focal areas are shale gas, including resource characterization, drilling technology, and environmental protection.

Gas Hydrates ($15 Million).—Continue research on the development of this major resource that exceeds our other reserves of natural gas.

Unconventional Fossil Energy Technologies ($10 Million).—Focal areas would include oil shale resources and enhanced environmental safety, especially for off-shore operations.

In addition, we recommend retention of the Ultra Deepwater and Unconventional Technologies program funded under section 999 of EPAct 2005, which the administration has recommended for rescission. This program supports competitive, cost-shared research jointly conducted by academic, nonprofit, State government (geological surveys) and industry which serve the needs of small oil and natural gas producers.

Other Programs

Program direction funds support salaries of research and program staff in the headquarters offices and the field offices of the Office of Fossil Energy. We recommend that all program direction funds be allocated under the Program Direction sub-element. The level of funding for fiscal year 2013 should be in excess of $155 million.

Administration recommendations for Plant and Capital Equipment should be increased to $17 million and Environmental Restoration should be funded at $8 million.

CLOSING COMMENTS

The funding requested by the administration for fiscal year 2013 is only 59 percent of the value of the equivalent program in fiscal year 2010. This low level of funding is insufficient to support the fossil energy R&D program the Nation needs to maintain our ability to generate inexpensive electricity or to enhance our ability to produce transportation fuels from our own resources. America's ability to sell its energy technology abroad is also being severely restricted because of insufficient funding to develop revolutionary new research ideas or to successfully demonstrate viable technologies to reduce the financial risk concerns of Wall Street and other financiers. The recommendations for allocating $634 million in the program elements illustrated above would return funding to 95 percent of fiscal year 2010 levels. We strongly recommend restoration of a robust program of fossil energy research.

We further recommend that the Congress also establish a mechanism to allocate funding on annual basis for the support of demonstration projects necessary to prove out promising fossil energy technologies for commercial development. In the past, $100 million has been allocated each year until a sufficiently large pool of funds was accumulated to offer a request for proposals for demonstration projects. We request congressional support for establishing a clean coal power initiative account for demonstration programs.

Thank you for your support for fossil energy research and development to maintain America's energy, economic, and environmental strengths.

PREPARED STATEMENT OF THE NUCLEAR ENERGY INSTITUTE

The Nuclear Energy Institute[1] (NEI) supports the administration's request for fiscal year 2013 funding for the Nuclear Regulatory Commission (NRC) ($1.053 bil-

[1]The Nuclear Energy Institute is the industry's policy organization, whose broad mission is to foster the beneficial uses of nuclear technology in its many commercial forms. Its member-

lion), the Department of Energy (DOE) National Nuclear Security Administration (NNSA) Fissile Materials Disposition program ($921 million), and the DOE Office of Environmental Management ($5.7 billion). NEI recommends $117 million more for the DOE Office of Nuclear Energy ($792 million), and an increase of $1 million to restore the NNSA Export Control Review and Compliance program to $12.5 million.

ADOPTING THE RECOMMENDATIONS OF THE BLUE RIBBON COMMISSION ON AMERICA'S NUCLEAR FUTURE

NEI supports the general policy recommendations of the Blue Ribbon Commission (BRC) on managing used nuclear fuel and high-level radioactive waste. A DOE task force is scheduled to provide a plan on implementing the recommendations to the Congress by the end of July, and industry believes that report should provide a basis for the fiscal year 2013 budget. The following programs deserve support and represent the highest priorities for the nuclear energy industry:

—Fuel Cycle Research and Development—$191 million (an increase of $16 million);

—Used Nuclear Fuel Disposition (the BRC recommendations)—$60 million; and

—Advanced Fuel Research and Development—$60 million (+$20 million).

NEI also supports the request of $10 million derived from the Nuclear Waste Fund to use on used fuel storage and disposal programs at DOE. NEI urges the subcommittee to support the following initiatives using $10 million from the Nuclear Waste Fund in fiscal year 2013. DOE should:

—Work closely with utilities, and based on work performed by the Department in fiscal year 2012, develop timelines, specifications and costs for the development, licensing, construction, and operation of a consolidated storage facility for spent nuclear fuel and high-level waste;

—Work closely with affected States, Indian tribes, and utilities to develop detailed transportation plans for moving spent nuclear fuel from the sites of nuclear power plants that have ceased operation to a consolidated storage facility;

—Work closely with affected States, Indian tribes, and utilities, to develop and implement a plan for training first responders in preparation for transportation under section 180c of the Nuclear Waste Policy Act of 1982 (42 U.S.C. 10101); and

—Identify communities potentially interested in hosting a consolidated storage facility; and

—Forward to the appropriate committees of the Senate and House of Representatives a budget and authorizing legislation for recommendations from DOE.

Within the DOE Fuel Cycle R&D program, $5 million should be used in fiscal year 2013 to collect data on the aging characteristics of used nuclear fuel in dry cask storage systems, to support the extended use of these systems, and ensure their transportability after periods of extended storage. The Advanced Fuel R&D program includes the Accident Tolerant Fuel Initiative which is important to long-term light water reactor fuel development and should receive $60 million in fiscal year 2013.

The nuclear industry remains concerned about the termination of the Yucca Mountain project. The project should proceed and be funded so the technical review of the license application can be completed. Numerous State and local governments and the National Association of Regulatory Utility Commissioners are actively opposing DOE's withdrawal of the application for the Yucca Mountain repository at the NRC and in the courts. We urge the subcommittee to request a specific plan, including the resources required for completing the Yucca Mountain licensing process, assuming the courts rule the application cannot be withdrawn.

URANIUM ENRICHMENT DECONTAMINATION AND DECOMMISSIONING FUND TAX UNDUE BURDEN ON ELECTRICITY CONSUMERS

The administration's fiscal year 2013 budget proposes to reinstate the uranium enrichment decontamination and decommissioning fund, with a tax on electric consumers of $200 million a year until 2022. Electric utilities have already paid twice for decontamination and decommissioning at uranium enrichment plants that were originally operated by DOE—first as part of the price for uranium enrichment services from the facilities and again under the Energy Policy Act of 1992. Under the

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ship, more than 350 corporate members in 17 countries, includes every U.S. utility that operates a nuclear power plant as well as international utilities, plant designers, architect and engineering firms, uranium mining and milling companies, nuclear service providers, universities, manufacturers of radiopharmaceuticals, universities, labor unions, and law firms.

1992 law, the tax on utilities was to end after 15 years or the collection of $2.25 billion, adjusted for inflation. The utilities paid this amount in full. Because the industry has fully met its obligation for the cleanup of the government facilities twice already, NEI strongly opposes the administration's proposal. The industry appreciates the support of the subcommittee in rejecting this proposal in prior years and encourages you to continue to oppose this proposal.

ENSURING A STRONG NUCLEAR REGULATORY COMMISSION

An independent, credible regulatory agency is required for public confidence in commercial nuclear energy facilities. During the next couple of years, the NRC must continue its inspection and licensing activities at America's nuclear energy facilities while implementing safety recommendations of the agency's task force based on lessons learned from the Fukushima Daiichi accident. Effectiveness of the five-member commission is essential to ensure NRC staff and licensees alike have clear policy guidance. The commission functions most effectively when it has a full complement of five commissioners, and the nuclear energy industry believes the Congress's highest priority should be ensuring that vacancies on the commission do not occur.

The industry supports fiscal year 2013 funding at the NRC's requested level of $1.053 billion, an increase of $15 million above its fiscal year 2012 funding levels. The industry remains concerned, however, at the steep escalation in agency budgets and staffing levels over the last decade, from 2,763 staff in fiscal year 2001 to 3,927 staff proposed in fiscal year 2013, and from $487 million in fiscal year 2001 to more than $1 billion proposed in fiscal year 2013. The industry is aware that the agency has $32 million in unobligated balances from prior years' appropriations. The NRC chairman has suggested that the additional Fukushima-related work would amount to nearly $30 million in new spending. If the agency does not plan to allocate these funds in this manner, the industry believes that the unobligated balances should be used to reduce licensee fees in future years.

The industry applauds the oversight of the NRC by the Congress to ensure the agency effectively prioritizes its activities and achieves closure on open issues in a timely and appropriate manner. The agency should continue to achieve greater transparency in its budgeting to reveal planned staffing and resource needs by individual divisions. This is particularly true concerning the defense and national interest programs funded by taxpayers in appropriated funds. In any 1 year, the NRC should ensure that these programs are funded at the entire 10 percent of available funds. A firewall should exist between fee-based sources of funds so the user fee is not used as an additional source of funding for appropriated programs. This would demonstrate to the Congress, the public and the industry (which pays 90 percent of the NRC's budget) that the budget fairly reflects industry-specific activities.

Once again, the administration has proposed terminating the Integrated University Program, which supports the Nation's universities and community colleges. This program supports important nuclear science and engineering research and workforce training. Given that more than one-half of America's green jobs in the electric sector are at nuclear energy facilities, it is vital that the Congress provide financial support for students and junior faculty. The NRC program is managed jointly with DOE's Office of Nuclear Energy and DOE's National Nuclear Security Administration and has been authorized by the Congress. NEI supports $15 million for NRC to continue its participation in the program in fiscal year 2013 and recommends that NRC fund the program at that level.

DEVELOPMENT OF ADVANCED REACTOR AND FUEL TECHNOLOGIES

The DOE Office of Nuclear Energy fiscal year 2013 budget is 12 percent lower than fiscal year 2012 while other DOE non-nuclear programs are funded at much higher levels. Funding was reduced by 17 percent in R&D programs that are vital to the Nation's interest in nuclear energy, science and technology. The cuts in DOE programs hinder the Nation's ability to manage used nuclear fuel and promote key research in innovative reactor concepts. The following programs deserve support and represent the highest priorities for the nuclear energy industry:

—Small Modular Reactor Licensing Technical Support—$95 million (+$30 million);
—Light Water Reactor Sustainability Program—$25 million (+$4 million);
—Energy Innovation Hub for Modeling and Simulation—$25 million;
—Integrated University Program—$5 million (+$5 million); and
—Next Generation Nuclear Plant—$41.5 million (+$20 million).

The Secretary of Energy strongly supports the small modular reactor licensing program and has proposed a 5-year, $452-million program. Unfortunately, the DOE fiscal year 2013 request of $65 million falls well short of that obligation, and the

industry requests that funding be increased to $95 million. DOE made a similar 5-year $250 million commitment for the Modeling and Simulation Hub and it is vitally important that this program receive the funding necessary to succeed. In addition, the Light Water Reactor Sustainability program that is cost-shared with industry should receive $4 million more than the DOE fiscal year 2013 request to implement research to extend the licenses of the Nation's operating reactors.

INDUSTRY SUPPORTS THE DEPARTMENT OF ENERGY INNOVATIVE TECHNOLOGIES LOAN GUARANTEE PROGRAM

The nuclear industry appreciates the support provided by the subcommittee for the DOE loan guarantee program for nuclear energy plants and uranium fuel cycle facilities. NEI urges the subcommittee to maintain the appropriated funds for projects under development for fiscal year 2013.

There is no cost to taxpayers for nuclear energy project loan guarantees, but there is significant benefit to consumers. The use of loan guarantees will lower the overall cost of nuclear energy projects, ultimately reducing the cost of electricity to consumers. Companies granted loan guarantees by DOE for nuclear energy projects must pay a premium for use of the program, plus cover all administrative costs. However, the clean energy loan guarantee program, although essential, is not yet a workable financing platform. NEI urges the subcommittee to exercise its oversight responsibilities on implementation by the executive branch, particularly on the issues of the credit subsidy cost that project sponsors are expected to pay.

ENVIRONMENTAL CLEANUP AND NATIONAL SECURITY

DOE's budget for the Environmental Management Office should be kept at level funding to ensure DOE meets its fiscal year 2013 enforceable environmental compliance milestones. NEI remains concerned about NNSA's part 810 export control rulemaking. The industry has identified several issues that will impact the implementation of the program in fiscal year 2013. The NEI urges the subcommittee to consider the impact to the U.S. industry as a result of the inadequate funding of $11.4 million proposed for fiscal year 2013 for review of export licenses, about $1 million less than last year. NEI supports the administration's request of $921 million for the Fissile Materials Disposition program.

PREPARED STATEMENT OF THE NUCLEAR ENGINEERING DEPARTMENT HEADS ORGANIZATION

Chairwoman Feinstein, Ranking Member Alexander, and members of the subcommittee: on behalf of the faculty and students comprising the nuclear education system in the United States we wish to provide testimony on fiscal year 2013 appropriations for the Department of Energy (DOE) and other relevant agencies under the subcommittee's jurisdiction.

As you begin to develop fiscal year 2013 appropriations legislation, we strongly urge you to reject the administration's request to enact a 10-percent reduction in the research and development (R&D) budget of DOE's Office of Nuclear Energy, and maintain funding for the Integrated University Program at fiscal year 2012 appropriated levels.

The Nuclear Engineering Department Heads Organization (NEDHO) is an alliance of heads and chairs of academic programs emphasizing nuclear and radiological science, engineering, and technology across the United States. NEDHO provides a forum for discussion, coordination, and collaboration on issues such as academic accreditation, funding for scholarships, fellowships, and research, and funding for training and research reactors. NEDHO collaborates with the American Nuclear Society, the Nuclear Energy Institute, the Test, Research, and Training Reactors (TRTR) organization, ABET, and other similar societies and organizations that have a stake in nuclear education. We also have strong interactions with industry and government both of which hire our students and utilize our research results. At present NEDHO's membership includes 43 U.S. academic institutions in 29 States, plus 2 military academies.

NEDHO seeks to inform national decisionmakers on nuclear policy, science and technology, and related education through Hill visits and by providing testimony at various subcommittee hearings. NEDHO's ultimate goal is to preserve our Nation's historic leadership in the nuclear field, and to sharpen our competitive edge in the future by maintaining a tradition of excellence in nuclear academia that is the envy of the world. For decades we have sustained the nuclear enterprise with a highly qualified human resource that led the development of nuclear power as a viable,

safe, and environmentally sound source of energy. Our graduates have also contributed to advances in nuclear medicine and a multitude of industrial applications, for example oil-well logging, and have engaged in international activities in the nuclear security and safeguards arena.

In recent years interest in the nuclear science and engineering education enterprise has been on the rise in the United States driven by three primary factors:

—U.S. economic and energy security;

—global competitiveness; and

—national nuclear security.

First, with regards to U.S. economic and energy security we note that nuclear energy today accounts for 20 percent of the U.S. total electricity supply and more than 70 percent of non-carbon-emitting electricity sources. The U.S. nuclear power industry, under a rigorous yet robust regulatory regime administered by the U.S. Nuclear Regulatory Commission (NRC), has established itself as a safe, environmentally responsible, economic, and highly reliable (about 90 percent capacity factors) provider of electric energy. Available forecasts for uranium ore indicate ample, reliable, and inexpensive supplies for the foreseeable future. The U.S. NRC's recent approval of two new AP 1000 reactors at the Vogtle site in Georgia, and their approval last week of two similar reactors in South Carolina, plus rising interest in Small Modular Reactors (SMR), ushers a new nuclear era in this country after a 30-year hiatus. The improving public perception of the safety of America's nuclear fleet will be sustained by the improved features in new designs and by incorporating lessons learned from Fukushima. Also the prospect of closing the backend of the fuel cycle that has been resuscitated by the Blue Ribbon Commission's report will hopefully kick into high gear to resolve this urgent issue once and for all.

Second, on the global scale many developing and underdeveloped nations are ambitiously seeking to build up their nuclear power capacity, most notably in the two most populated countries in the world, China and India, whose economies are undergoing aggressive growth. A recent presentation by DOE personnel reported on the magnitude of the global market for nuclear power in the foreseeable future as follows: there are more than 430 reactors operating in 30 countries, producing 370 GWe, or about 14 percent of the global electricity supply. There are currently 65 reactors under construction in 15 countries, with 26 of these in China alone. These operating and soon-to-operate reactors comprise a substantial global market for equipment (e.g., turbines, generators, instrumentation), fuel, and services. DOE also notes 154 power reactors planned in 27 countries for the next 8–10 years costing more than $740 billion, and a total of 331 reactors proposed in 37 countries over the next 15 years at a projected cost of $1.6 trillion. Not only are the economic rewards of U.S. engagement in this growing global market necessary for providing highly paying jobs for Americans involved in the design, analysis, and potentially construction of new reactors, it is an essential means of spreading high U.S. technical standards in this sensitive industry across the globe. A safety culture that transcends national boundaries and that is based on a solid scientific foundation and supported by decades of excellent American experience is the best guarantee that nuclear power will remain an agent for improving the global environment.

Third, the growing number of nuclear-hopeful nations and the widening footprint of nuclear power raises concerns about nuclear proliferation to historic highs and makes a strong case for developing novel and better detectors and methods for verifying that nuclear materials are only being employed for peaceful purposes. These concerns cannot be addressed solely by controlling the flow of scientific knowledge and underlying technologies and requires a revamped structure that better integrates the technical and policy aspects of this issue. In addition, the continued threat of nuclear terrorism is not likely to abate any time soon and demands the continuous and untiring vigilance of relevant agencies within the U.S. Government.

Common to all these factors is the need for a highly educated nuclear workforce that is aware of national needs and that is well equipped to tackle them. The magnitude of this immense challenge was wisely recognized by the U.S. Congress and two administrations since 2009 when two programs designed to reinvigorate nuclear education in the U.S. were inaugurated: The Integrated University Programs (IUP) and the DOE Nuclear Energy University Programs (NEUP). The Blue Ribbon Commission likewise recognized the importance of U.S. leadership in the nuclear area, and highlighted continued innovation in nuclear technology and workforce development as one of its eight major recommendations.

A decade ago Federal investment in R&D and nuclear education infrastructure was administered by DOE's Office of Nuclear Energy (DOE–NE). Support through scholarships, fellowships, equipment grants, research reactor upgrades, et cetera was crucial to stemming the precipitous decline in the 1990s of nuclear academic programs and university research reactors. In 2008, foreseeing an impending nu-

clear human resource crisis fueled by an aging workforce and the rising prospect of mass retirements DOE–NE created NEUP that directed approximately 20 percent of NE's R&D funding towards universities in support of DOE–NE's research mission. And in 2009 the IUP was instated by the Congress to instill some degree of stability in the funding stream of nuclear education by diversifying sponsorship across three Federal agencies: DOE's NE, DOE's National Nuclear Security Administration (NNSA), and the US NRC. The three arms of IUP were directed to support broad educational objectives via programmatic and non-programmatic awards, and to coordinate their support mechanisms in order to minimize duplication.

In the ensuing years these support schemes have succeeded in reviving nuclear academia, and expanded interest in nuclear research topics into other disciplines, e.g., material science, mechanical engineering, radiochemistry, leading to a fertile interdisciplinary research environment in support of the Nation's research agenda. All awards made via NEUP and IUP are competitive and have seen broad participation from across the Nation. To be specific, the NRC invested its share of IUP in curriculum development ($5 million), Junior Faculty Development, scholarships and fellowships awarded to selected universities, and support of community colleges (a total of $10 million). NNSA now dedicates $5 million in support of the Nuclear Science and Security Consortium led by the University of California, Berkeley, and awards $10 million in programmatic support of basic research projects relevant to nuclear security.

DOE–NE administers IUP through NEUP in two separate funding streams. First, NEUP spends $5 million in direct IUP funding on scholarships and fellowships awarded directly to student applicants. This program is distinct in its objectives from NRC's scholarship and fellowship program in that it is designed to attract top talent to the field without regard to the university where they seek their respective degree. While this type of recruitment is likely to raise the overall quality of students in the nuclear field, it is expected to concentrate these students in highly ranked schools creating severe discrepancy among the remaining nuclear academic programs. In contrast, NRC's program empowers awarded departments to use the funds in recruitment of high-quality students that will promote the reputation of the awarded department and ensure a diverse educational foundation that improves the chances of innovative breakthroughs. In addition, DOE–NE has committed up to 20 percent of its R&D funds to support university research via competitive awards of varying levels of programmatic relevance. Some of these funds have been awarded in support of nuclear infrastructure in U.S. universities.

To appreciate the importance of IUP for the revival of nuclear engineering academia in the United States we note that the elements of IUP cover the three primary missions of a research intensive university:

—education (undergraduate and graduate);

—research; and

—service.

In the 3 years since its inception IUP has succeeded in reversing enrollment decline that all but dominated the 1990s, with enrollments continuing to climb even after the Fukushima event, and in revitalizing existing academic programs with several universities starting new nuclear engineering programs from scratch. Sustaining support of IUP sends a clear and loud message to university administrators who need to support nuclear programs and to prospective students that their career investment in this field is desirable and will be rewarded. In contrast, reducing DOE–NE's R&D budget, and eliminating support for IUP sends a confusing message to the same administrators and target students and steers them away from a field that we believe, and we hope you agree, is of prime national interest.

In closing we hope that your subcommittee will reverse this damaging development. Continued funding for NEUP and IUP will protect the great progress achieved in nuclear academic programs in support of our Nation's ability to compete in the global nuclear marketplace and to enhance the safe and secure utilization of nuclear technology for the benefit of humanity.

Thank you.

PREPARED STATEMENT OF THE SACRAMENTO MUNICIPAL UTILITY DISTRICT

Dear Chairwoman Feinstein: On behalf the Sacramento Municipal Utility District (SMUD), I want to thank you again for supporting the Department of Energy's (DOE) Water Power Program and your staff's excellent work in securing $59 million for the program in fiscal year 2012. I am writing to respectfully request that the Senate Appropriations Committee fund the Water Power Program at the same level of $59 million for fiscal year 2013. This amount should be directed to support hydro-

power research and development including projects classified as "conventional hydropower".

Investments during the past few years in what is labeled "conventional" hydropower technologies have resulted in the development of more efficient and environmentally friendly turbines, reduced costs in state-of-the-art small hydropower technology, and advances in technologies to integrate intermittent renewable energy resources into the electric grid. These advances could be lost if the administration's fiscal year 2013 budget request, which proposes cutting the Water Power Program's funding level to $20 million, is enacted and if no R&D funds are designated for conventional hydropower projects.

Northern California electricity customers have benefitted directly from investments made by the Water Power Program. In 2011, SMUD was awarded two multiyear grants, including a $4.96 million award to assist with initial geotechnical studies for the proposed 400 MW Iowa Hill pumped storage project. While pumped storage technology has existed for some time, SMUD is researching advanced plant control systems featuring variable speed pump generators that have yet to be applied in the United States. Use of this new technology would enhance SMUD's ability to integrate high levels of intermittent renewable resources such as wind and solar power into our electrical system while maintaining electric reliability.

The DOE also awarded SMUD $1.49 million to help implement a new low-head modular hydropower unit at the Slab Creek Powerhouse project featuring inward flow reaction turbine technology allowing creative use of existing tunnels to generate power from minimum releases of the existing reservoir.

Each of these grants was awarded based on their ability to contribute to the development of new technologies that produce conventional hydropower more efficiently, reduce costs, and increase sustainable hydropower generation. Both projects will advance innovation in a traditional, carbon-free resource.

Because SMUD's grants depend on future appropriations, including fiscal year 2013 funding, and to ensure continued Federal investment in these valuable and innovative initiatives, SMUD believes the current level of $59 million in funding for the Water Power program should be maintained.

Thank you for your attention and support on these issues.

PREPARED STATEMENT OF THE SOCIETY FOR INDUSTRIAL AND APPLIED MATHEMATICS

SUMMARY

This written testimony is submitted on behalf of the Society for Industrial and Applied Mathematics (SIAM) to ask you to continue your support of the Department of Energy (DOE) Office of Science by providing $4.99 billion in fiscal year 2013. In particular, we urge you to provide significant support for the Applied Mathematics Program within the Office of Advanced Scientific Computing Research (ASCR) within the Office of Science. We also emphasize the importance of support for graduate students, postdoctoral fellows, and early career researchers.

WRITTEN TESTIMONY

We are Dr. Lloyd Nicholas Trefethen, President, and Dr. Reinhard Laubenbacher, Vice President for Science Policy, of the Society for Industrial and Applied Mathematics (SIAM). On behalf of SIAM, we are submitting this written testimony for the record to the Subcommittee on Energy and Water Development of the Committee on Appropriations of the U.S. Senate.

SIAM has approximately 13,000 members, including applied and computational mathematicians, computer scientists, numerical analysts, engineers, statisticians, and mathematics educators. They work in industrial and service organizations, universities, colleges, and government agencies and laboratories all over the world. In addition, SIAM has more than 500 institutional members—colleges, universities, corporations, and research organizations. SIAM members come from many different disciplines, but have a common interest in applying mathematics in partnership with computational science towards solving real-world problems.

First, we would like to emphasize how much SIAM appreciates your subcommittee's continued leadership on and recognition of the critical role of the DOE Office of Science and its support for mathematics, science, and engineering in enabling a strong U.S. economy, workforce, and society. DOE was one of the first Federal agencies to champion computational science as one of the three pillars of science, along with theory and experiment, and SIAM deeply appreciates and values DOE activities.

Today, we submit this testimony to ask you to continue your support of the DOE Office of Science in fiscal year 2013 and beyond. In particular, we request that you provide the Office of Science with $4.99 billion, the level requested in the fiscal year 2013 budget request. SIAM is aware of the significant fiscal constraints facing the administration and the Congress this year, but we note that, in the face of economic peril, Federal investments in mathematics, science, and engineering remain crucial as they help to maintain U.S. pre-eminence in innovation, upon which our economy and fiscal health depend.

THE ROLE OF MATHEMATICS IN MEETING ENERGY CHALLENGES

The Nation faces critical challenges in energy, including in energy efficiency, renewable energy, improved use of fossil fuels and nuclear energy, future energy sources, and reduced environmental impacts of energy production and use. As DOE and the research community design a long-term strategy to tackle these issues, the tools of mathematics and computational science (theory, modeling, and simulation) have emerged as a central element in designing new materials, predicting the impact of new systems and technologies, and better managing existing resources. Already, mathematical and computing researchers in universities, national laboratories, and industry are providing insights that propel advances in such fields as nanotechnology, biofuels, genomics, climate modeling, and materials fabrication.

To tackle many of these challenges, DOE must be able to understand complex systems such as the U.S. power grid, the dispersion of nuclear radiation after a disaster, and the Earth's climate system. These and other complex systems have high levels of uncertainty, lack master plans, and are susceptible to breakdowns that could have catastrophic consequences. Understanding complex systems helps mitigate these risks and facilitate the development of controls and strategies to make systems more efficient.

DEPARTMENT OF ENERGY OFFICE OF SCIENCE

Activities within ASCR play a key role in supporting research that begins to fulfill the needs described above. Particularly critical programs include:

—the Applied Mathematics program;

—the Scientific Discovery through Advanced Computing (SciDAC) program; and

—programs to maintain the pipeline of the mathematical workforce.

SIAM supports the $455.6 million requested for ASCR for fiscal year 2013. SIAM appreciates that the requested increase for fiscal year 2013 would be directed to the Mathematical, Computational, and Computer Sciences Research activity programs, helping to restore balance between research activities and facility investments.

SIAM supports Office of Science plans to fund research to manage ever-growing data volumes in science. The explosion in data available to scientists from advances in experimental equipment, simulation techniques, and computer power is well known, and applied mathematics has an important role to play in developing the methods and tools to translate this shower of numbers into new knowledge.

SIAM also supports funding for research to develop exascale computing and notes that investments in algorithm research and software development are essential to developing the next generation of high-performance computers, realizing the full benefits of these new machines, and transferring those capabilities to industry for broad economic benefit.

SUPPORTING THE PIPELINE OF MATHEMATICIANS AND SCIENTISTS

Investing in the education and development of young scientists and engineers is a major step that the Federal Government can take to ensure the future prosperity and welfare of the United States. Currently, the economic situation is negatively affecting the job opportunities for young mathematicians—at universities, companies, and other research organizations. It is not only the young mathematicians who are not being hired who will suffer from these cutbacks. The research community at large will suffer from the loss of ideas and energy that these graduate students, postdoctoral fellows, and early career researchers bring to the field, and the country will suffer from the lost innovation.

Maintaining the pipeline of the mathematical workforce with programs that fund research and students is especially important because of the foundational and cross-cutting role that mathematics and computational science play in sustaining the Nation's economic competitiveness and national security, and in making substantial advances on societal challenges such as energy. DOE programs support the educational and professional development of the researchers at universities, companies, and the national laboratories who will tackle the research problems needed to change energy usage in this country.

Within the Office of Advanced Scientific Computing Research, the Computational Science Graduate Fellowship program is a highly successful and model program that enables students to receive robust training in mathematics and also learn to interface with a wide variety of other fields. We request that strong support for this program continue, as well as ongoing support for postdoctoral fellows at DOE national laboratories and universities.

CONCLUSION

The programs in the Office of Science, particularly those discussed above, are important elements of DOE's efforts to fulfill its mission. They contribute to the goals of dramatically transforming our current capabilities to develop new sources for renewable and low-carbon energy supplies and improve energy efficiency to ensure energy independence and facilitate DOE's effort to increase U.S. competitiveness by training and attracting the best scientific talent into DOE headquarters and laboratories, the American research enterprise, and the clean-energy economy.

We would like to conclude by thanking you again for your ongoing support of the DOE Office of Science and the actions you have already taken to enable DOE and the research and education communities it supports, including thousands of SIAM members, to undertake the activities that contribute to the health, security, and economic strength of the United States. The DOE Office of Science needs sustained annual funding to maintain our competitive edge in science and technology, and therefore we respectfully ask that you continue your support of these critical programs.

We appreciate the opportunity to provide testimony to the Committee on behalf of SIAM and look forward to providing any additional information or assistance you may ask of us during the fiscal year 2013 appropriations process.

PREPARED STATEMENT OF THE STATE TEACHERS' RETIREMENT SYSTEM, STATE OF CALIFORNIA

SUMMARY

Acting pursuant to congressional mandate, and in order to maximize the revenues for the Federal taxpayer from the sale of the Elk Hills Naval Petroleum Reserve to private industry by removing the cloud of the State of California's claims, the Federal Government reached a settlement with the State in advance of the sale.

The State waived its rights to the Reserve in exchange for fair compensation in installments stretched out over an extended period of time.

In its fiscal year 2013 budget, the administration has requested the appropriation of $15,579,815 for the final installment of Elk Hills compensation to fulfill the Federal Government's obligations to the State under the Settlement Agreement. The State respectfully requests the appropriation by the Congress of $15,579,815 of the final Elk Hills compensation payment due to the State.

BACKGROUND

Upon admission to the Union, States beginning with Ohio and those westward were granted by the Congress certain sections of public land located within the State's borders. This was done to compensate these States having large amounts of public lands within their borders for revenues lost from the inability to tax public lands as well as to support public education. Two of the tracts of State school lands granted by the Congress to California at the time of its admission to the Union were located in what later became the Elk Hills Naval Petroleum Reserve.

The State of California applies the revenues from its State school lands to assist retired teachers whose pensions have been most seriously eroded by inflation. California teachers are ineligible for Social Security and often must rely on this State pension as the principal source of retirement income. Typically the retirees receiving these State school lands revenues are single women more than 75 years old whose relatively modest pensions have lost as much as one-half or more of their original value to inflation.

STATE'S CLAIMS SETTLED, AS THE CONGRESS HAD DIRECTED

In the National Defense Authorization Act for fiscal year 1996 (Public Law 104–106) that mandated the sale of the Elk Hills Reserve to private industry, the Congress reserved 9 percent of the net sales proceeds in an escrow fund to provide compensation to California for its claims to the State school lands located in the Reserve.

In addition, in the act, the Congress directed the Secretary of Energy on behalf of the Federal Government to "offer to settle all claims of the State of California . . . in order to provide proper compensation for the State's claims." (Public Law 104–106, section 3415). The Secretary was required by the Congress to "base the amount of the offered settlement payment from the contingent fund on the fair value for the State's claims, including the mineral estate, not to exceed the amount reserved in the contingent fund". (Id.)

Over the year that followed enactment of the National Defense Authorization Act mandating the sale of Elk Hills, the Federal Government, and the State engaged in vigorous and extended negotiations over a possible settlement. Finally, on October 10, 1996, a settlement was reached, and a written Settlement Agreement was entered into between the United States and the State, signed by the Secretary of Energy and the Governor of California, under which the State would receive 9 percent of the sales proceeds in annual installments over an extended period.

The Settlement Agreement is fair to both sides, providing proper compensation to the State and its teachers for their State school lands and enabling the Federal Government to maximize the sales revenues realized for the Federal taxpayer by removing the threat of the State's claims in advance of the sale.

FEDERAL REVENUES MAXIMIZED BY REMOVING CLOUD OF STATE'S CLAIM IN ADVANCE OF THE SALE

The State entered into a binding waiver of rights against the purchaser in advance of the bidding for Elk Hills by private purchasers, thereby removing the cloud over title being offered to the purchaser, prohibiting the State from enjoining or otherwise interfering with the sale and removing the purchaser's exposure to treble damages for conversion under State law. In addition, the State waived equitable claims to revenues from production for periods prior to the sale. The Reserve thereafter was sold for a winning bid of $3.53 billion in cash, a sales price that substantially exceeded earlier estimates.

THE CONGRESS SHOULD APPROPRIATE $15,579,815 FOR FISCAL YEAR 2013 FOR THE FINAL INSTALLMENT OF ELK HILLS COMPENSATION DUE TO THE STATE

The State's 9-percent share of the adjusted Elk Hills sales price of $3.53 billion is $315,099,815 (after deducting the State's share of the sales expenses). As the Congress had directed in the 1996 Act that mandated the sale of Elk Hills, 9 percent of the net proceeds were reserved in a contingent fund in the Treasury for payment to the State. To date, the Congress has appropriated seven installments of $36 million and one installment of $48 million that was reduced to $47.52 million by the 1 percent across-the-board rescission under the fiscal year 2006 Defense Appropriations Act, for total appropriations to date of $299.52 million of Elk Hills compensation owed to the State.

The administration's budget for fiscal year 2013 requests the appropriation of $15,579,815 for the Elk Hills School Lands Fund to pay the final installment of Elk Hills compensation due to the State. (Budget of the United States Government, fiscal year 2013—Appendix, at p. 446, Account No. 89–5428–0–2–271). Thus, the provision for Elk Hills compensation is a line item in the Federal budget; it is not an earmark.

The State respectfully requests the appropriation by the Congress of $15,579,815 to fulfill the Federal Government's obligation to the State under the Settlement Agreement.

PREPARED STATEMENT OF THE UNIVERSITY CORPORATION FOR ATMOSPHERIC RESEARCH

On behalf of the University Corporation for Atmospheric Research (UCAR) and the university communities engaged in Earth systems research and education, I submit this written testimony for the record of the Senate Committee on Appropriations, Subcommittee on Energy and Water Development. UCAR is a consortium of 77 research universities that manages and operates the National Center for Atmospheric Research (NCAR) on behalf of the National Science Foundation (NSF) and the university community. I urge the subcommittee to fund the fiscal year 2013 budget request of $4.992 billion for the Department of Energy (DOE) Office of Science, including $625.3 million for Biological and Environmental Research, and $2.337 billion for the DOE Office of Energy Efficiency and Renewable Energy (EERE).

With the following, I highlight several science research and development programs that represent DOE's critical contributions to American leadership in science and technology:

DEPARTMENT OF ENERGY OFFICE OF SCIENCE

The DOE Office of Science directly supports university and laboratory research, increasing the Nation's capacity to understand and advance numerous fields of science, including the atmospheric sciences. More broadly, the DOE's world-class laboratories, the research conducted at the labs, and the scientific facilities accessible to the larger research community through the labs, are centerpieces of the robust innovation ecosystem that keeps the United States an international leader in science and technology and that stimulates the economy through technology development.

Biological and Environmental Research.—The Biological and Environmental Research (BER) program within DOE Science makes fundamental contributions to the Nation's premier Earth system models and data analysis infrastructure that provide the scientific foundation for future decisionmaking on environmental change. Without BER-supported work, we would not know the level of risk that cities, states, and businesses face from long-term weather trends and what societal preparation and adaptation might be needed.

In particular, the Climate and Environmental Sciences program within BER provides indispensable support to the Community Earth System Model (CESM), a comprehensive computer model supported by DOE and NSF to analyze Earth's past, present, and project future climate. CESM is a major contributor to national and international assessments of environmental change. And while CESM is housed and managed at NCAR, it is an open-source climate model, involving contributions and improvements from scientists across the Nation and around the world.

Thanks in part to BER support, CESM is incorporating more complex and realistic representations of the natural and human processes that shape the global climate. For example, the model now has a dynamically coupled carbon and nitrogen cycle component that allows representation of realistic exchanges of CO_2 between the atmosphere, the oceans, and the land surface. This new capability will allow realistic studies of the role of the ocean in absorbing and releasing CO_2 to the atmosphere, thereby obtaining more accurate predictions of future CO_2 concentrations that are fundamental to understanding the nature and magnitude of future changes in global climate. Carbon and nitrogen cycling in CESM provides the means to study in detail the contributions of land use change and vegetation disturbance to local, regional and global climate change. These new capabilities will allow the climate science community to address societally relevant questions in a way that has not been possible in the past.

CESM performs exceptionally well on DOE's modern supercomputers, having been run at high resolutions in one experiment on more than 100,000 processors of the Cray Jaguar-PE system at Oak Ridge National Laboratory. CESM scenario runs are now underway on this and other supercomputers to make projections for the U.N. Intergovernmental Panel on Climate Change's Fifth Assessment Report, expected to be released in 2014.

New in fiscal year 2013, climate and Earth system modeling research at DOE will develop an enhanced validation and verification capability to compare models and measurements against a unified framework using sophisticated software tools. This initiative promises to improve the efficiency of data management and analysis in the field. As in fiscal year 2012, atmospheric scientists will continue to receive grant funding for cutting-edge research on aerosols, clouds, and aerosol-cloud interactions, in order to improve estimates of how these feedbacks impact climate, an area of atmospheric research that can be better understood.

In order to develop more accurate, increasingly realistic, and higher resolution Earth system models, with better environmental predictive capabilities for businesses, stakeholders such as water resource managers, and communities, I urge you to fund the Office of Biological and Environmental Research within the DOE Office of Science at the requested $625.3 million for fiscal year 2013, including $315.6 million for Climate and Environmental Sciences within BER.

ADVANCED SCIENTIFIC COMPUTING RESEARCH

According to a 2011 National Research Council report The Future of Computing Performance, Game Over or Next Level?, "Virtually every sector of society—manufacturing, financial services, education, science government, the military, entertainment, and so on—has become dependent on continued growth in computing performance to drive new efficiencies and innovation." Within the atmospheric sciences, the

advancement of our science rests on the continued growth of computing performance and capabilities. DOE Science's Advanced Scientific Computing Research (ASCR) delivers needed leading edge computational and networking capabilities to scientists nationwide, enabling the Office of Science and the larger university community to address and answer major scientific questions.

In particular, the atmospheric sciences community depends on the ASCR Leadership Computing Facilities (LCFs), which are available to all researchers for scientific discovery and to address critical engineering challenges. The continued support of these programs is of particular importance to Earth system model development. Representing the complex processes and feedbacks of the Earth's systems, while efficiently harnessing the enormous amount of computing power necessary, requires very advanced software engineering, computer science, and numerical techniques. Because the climate simulations using the CESM (described above) are too computationally intensive to be run at NCAR alone, many computational experiments are run at the LCF's.

At the Oak Ridge National Laboratory Leadership Computing Facility (OLCF), for example, a new 2.33-petaflop Cray XT5 system is already available to the scientific community, and OLCF plans to upgrade it to a 10-petaflop Cray XK6 system in upcoming years. The Argonne National Laboratory Leadership Computing Facility (ALCF) plans to upgrade its IBM Blue Gene/Q supercomputer to a 10-petaflop system this year. Alongside the NCAR-Wyoming Supercomputing Center and its 1.6-petaflop Yellowstone system soon to be delivered to this new facility, these DOE supercomputers will empower atmospheric scientists to push the boundaries of Earth systems modeling science.

In the same way that more powerful telescopes enable new discoveries in astronomy, each major supercomputer upgrade enables new numerical experiences that reveal more details regarding how the Earth system works. This information is critical to efforts to understand and predict regional climate, as well as to develop and assess mitigation and adaptation strategies. A failure to maintain and continue to upgrade these LCFs would seriously undermine the steady progress in this and many other areas of science.

Another important cross-cutting computing program that operates in partnership with ACSR and other programs within DOE Science is the Scientific Discovery through Advanced Computing (SciDAC) program. SciDAC accelerates scientific progress by breaking down the barriers between disciplines and fostering more dynamic partnerships between basic researchers and computational science applications. A SciDAC effort in partnership with BER, for example, is quantifying the uncertainty in next-generation integrated Earth system models in order to dramatically improve our ability to characterize the drivers of global climate and quantify the impact of energy production and use on the environment and human health.

I urge you to fund the Advanced Scientific Computing Research within the DOE Office of Science at the fiscal year 2013 requested level of $455.6 million and to support SciDAC program throughout the Office of Science budget.

ENERGY EFFICIENCY AND RENEWABLE ENERGY RESEARCH AND DEVELOPMENT

Renewable energy research, development, and technology transfer are among the most important investments we can make to ensure long run economic and environmental sustainability. Renewable energy technology contributes numerous cross-cutting benefits to society, including reducing our dependence on foreign oil and providing energy security, driving innovation and job creation in the energy economy, decentralizing the energy market, providing new high-tech jobs, reducing the human toll on the environment, and improving air quality and public health outcomes. DOE's Energy Efficiency and Renewable Energy (EERE) is at the heart of this transformation.

Our national research universities, in collaboration with DOE laboratories and the private sector, are driving the country's innovation in renewable energy and energy efficiency. One example of such collaboration includes a partnership between NCAR, DOE's National Renewable Energy Laboratory (NREL), and Xcel Energy, Colorado's largest utility company, to develop sophisticated wind forecasts for operational use. These forecasts provide critical information to utilities to:

—help them predict how much wind power will be generated over the next 24 to 72 hours;

—enhance their ability to better integrate wind-generated electricity into the grid; and

—assist with decisionmaking processes regarding whether to power down coal- and natural gas-fired plants when sufficient winds are predicted. To reduce the costs of integrating wind and solar energy into the electrical grid and make re-

newable energy more cost effective, significant improvements in weather forecasting technologies will be required, and additional weather observations in the lower atmosphere will be needed.

Given the critical importance to the Nation of developing economically and environmentally sustainable technologies for energy production, I urge the subcommittee to fund the fiscal year 2013 request of $2.337 billion for the Office of Energy Efficiency and Renewable Energy.

I want to thank the members of the subcommittee in advance for supporting, through DOE, basic and applied scientific research in the environmental and other Earth sciences. By doing so, you advance the Nation's economic recovery, help stakeholders manage irreplaceable natural resources, and sustain the Nation's global scientific leadership.

PREPARED STATEMENT OF THE URS CORPORATION

Mr. Chairwoman and members of the subcommittee: My name is Dr. Douglas Everett Wyatt, Jr.,[1] and in my capacity as Director of Science Research for URS Corporation supporting the Department of Energy (DOE), Office of Fossil Energy, National Energy Technology Laboratory, I provide this testimony. Specifically, I will address the essential support of the Strategic Center for Natural Gas and Oil, a Program Office within the National Energy Technology Laboratory (NETL) for the Office of Fossil Energy.

The abundant availability of energy, in all of its various forms, has been a primary catalyst for the development of advanced civilization. While this is somewhat a philosophical thought I believe it to be as true today as it was for any time in the past. Simply put, there is no conceivable advanced future for the Nation without increasingly abundant energy. As a scientist for the past 30 years, I am keenly aware that energy can be produced cleanly and utilized efficiently as the following testimony will describe.

No scientist or engineer believes that a single energy source is a viable solution for our national energy needs. We understand the energy systems of the past and present, and can reasonably predict the energy systems of the near future. However, because of the dynamics of discovery and imagination, our ability to predict energy needs and sources beyond six to eight decades is limited but the scientific community can predict energy utilization and resources for the next 30 to 40 years. Oil and natural gas will continue to be a primary energy resource during this time and the research initiatives of the Strategic Center for Natural Gas and Oil strongly supports our Nation's ability to efficiently and cleanly use this resource as part of our global energy mix over the next several decades.

Oil and natural gas exploration, development and production is well-understood by hundreds of oil and gas companies in the U.S. market. Yet only a few of the largest companies, i.e., ExxonMobil, ConocoPhillips, Chevron, have active self-funded research programs addressing new technology and science associated with oil and natural gas production, expansion, and efficiency. These companies, along with the larger industry support companies, i.e., Schlumberger, Halliburton, Weatherford, often support academic research in expanded and efficient oil and gas development, but the vast majority of their research is to develop a competitive advantage in the market; therefore, the knowledge gained is proprietary. Only when partnered with a Federal agency will the research become public. The Strategic Center for Natural Gas and Oil is unique in that it leverages Federal funding to integrate Federal, academic, and commercial research so that new science and technology, supporting national policy and energy needs, is performed with data available to the public. Therefore, I believe that it is critically important for the programs of the Strategic Center for Natural Gas and Oil to be more fully funded and expanded.

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[1] Douglas E. Wyatt works for the URS Corporation, a global Fortune 500 company and major support contractor to the U.S. Government. URS employs 57,000 people working in program management, engineering, design and construction, in site maintenance and operations, and in decommissioning and decontamination. URS has been named as the largest global environmental company and is consistently in the top ten in engineering and architecture, power, design, construction, transportation, and industrial processes. Wyatt holds a Ph.D. in geological sciences from the University of South Carolina, an MS in geology and geophysics from Vanderbilt University, a BA in physical geography, and BA in zoology from the University of Tennessee. He has more than 140 publications, papers, and presentations. Wyatt has 30 years of experience including oil and gas exploration and production, nuclear energy, geothermal and renewable energy, environmental characterization and in creating and managing large multidisciplinary research programs. He lives in Aiken, South Carolina.

In my capacity as a scientist, with a finger on the pulse of the state of the industry, I believe there are three critical areas in fossil energy oil and gas where a Federal research presence, through the Strategic Center for Natural Gas and Oil, is essential so that:

—technologies are investigated under a variety of conditions and potential impacts are better understood;

—technologies or concepts that may not seem immediately useful or marketable to industry in the short term are evaluated; and

—the broadest distribution of knowledge and data is guaranteed.

The three areas of Federal research with proposed budgets and rationale are:

CO_2 Enhanced Oil and Gas Recovery—The Use of CO_2 in Enhanced Oil Recovery and Residual Oil Zone Production From Historic, Diminished and Depleted Oil Reservoirs.—Enhanced Oil Recovery (EOR) is common practice in the oil industry and CO_2 is currently used for this purpose. However, there are known limits to the capability of the existing technology and utilization issues due to the limited availability of clean CO_2. Current research suggests that there are a variety of high-technology options to improve the effectiveness of CO_2 in the oil reservoir such as chemically altering nanoparticles and enhanced geophysical monitoring of the CO_2-oil interaction. In addition, there is a probability that CO_2 can be beneficially reused as a replacement for water in the hydraulic fracturing of shale and other gas producing geological formations. The utilization of CO_2 in "fracking" operations would eliminate many of the current environmental concerns associated with shale gas production. Other examples of CO_2 use are available. Many new enhanced oil recovery concepts using CO_2 as the working fluid are subject to scientific analysis. I strongly recommend you fund this research program at $150 million over a 5-year period with $30 million annually. A $30 million annual budget would allow for 10 to 20 university research efforts to be completed, a robust extramural research competitive program to be completed, continuation of NETL intramural research, and for a joint industry, academic, Federal partnership to be formed to market and commercialize technologies developed from this program. The U.S. produces approximately 280,000 barrels of oil per day from 114 active fields from CO_2 EOR. Considering the current price of oil, if only 2 extra days' of oil production were generated from this research, then the value of the new CO_2 EOR oil added to the national daily total would cover the cost of this critical research. However, new research into CO_2 EOR might be expected to produce new efficiencies of 5 to 15 percent and more, above current production. I strongly urge you to fund the Strategic Center for CO_2 Enhanced Oil and Gas recovery research.

Environmentally Safe Development, Production and Utilization of Natural Gas and Oil/Liquids From Unconventional Source Rocks.—The production of massive quantities of natural gas from organic-rich shale source rocks provides our Nation a path to energy independence. The effective use of shale gas has the ability to shift global energy markets to our Nation's substantial favor. In effect, a vision of our Nation no longer coupled to the global oil market can be realized. The oil and gas industry understands this possibility and is proceeding with the development and production of abundant natural gas. Research into best practices for shale gas reservoir development, new technologies for reservoir stimulation, water disposal, near surface environmental protection, and in the overall utilization of the gas are but a few of the issues that demand attention. All of these research missions are important but two deserve special attention.

Current shale gas reservoir development by hydraulic stimulation, "fracking", only stimulates a portion of the total shale volume intersected by a horizontal well. It is probable that well bores might be drilled on a closer spacing increasing the volume of rock penetrated and the overall availability of gas. This possibility implies that the current recoverable volumes of natural gas from shale, or other organic rich gas-producing source rocks, might be doubled, or even tripled. Additionally, if wells can be drilled on a denser spacing then it becomes possible to strategically locate wells so that surface and human impacts could be maximized or minimized, depending on the need. Research to validate this concept and to develop best methodologies is required.

New gas utilization concepts and technologies are also particularly important. Natural gas is a very clean and versatile fuel that can be used in fuel cells, chemical looping reactors, or directly burned in internal combustion engines. There are other advanced concepts which could be directly applied to the well-head and production area for electricity and industrial heat generation, converted to useful goods and merchandise such as plastics, among other probabilities. The wide-spread distribution of shale gas reservoirs and the abundant gas produced from a typical shale well implies that it might be possible to use shale gas derived energy in the form of heat

and electricity in small-scale localized transmission grids and funneled into the overall national SmartGrid technology program.

Possibly more important is the use of natural gas as a bridge fuel. Natural gas is a clean burning and abundant fossil fuel that can be used in a variety of existing and new applications, including transportation, to form a bridge from our current fossil energy mix to a future electrified energy mix that is projected over the next several decades. Not only can the gas be burned for heat for internal combustion engines or electrical generators it can be used directly in fuel cell applications to generate electricity. Since natural gas can be compressed, liquefied, and adsorbed it can be used in almost any system requiring electrical or heat energy. It is a natural bridge fuel for our Nation that requires your attention.

There are many recent research successes in the development of environmentally safe natural gas. These include the recent DOE data and support to the Environmental Protection Agency for "fracking" related groundwater issues, the development of potential new nanoparticles supporting gas and oil EOR, and the development of new approaches to modeling and imaging multiphase, multifluid flow in shale and sandstones. However, new research into the utilization of natural gas for new and expanded markets is needed. I recommend that $300 million funding allocation over a 5-year period be authorized to complete research in this area. A $60 million annual allocation will allow for a variety of university collaborations consisting of 20 to 40 university research efforts covering a broad spectrum of research needs. A competitive extramural research program of joint industry and joint industry and academia can be completed to insure for the best market and technology applications. Additionally, a small-business industry program to develop, market, and deploy new technologies will insure wide-spread use throughout the industry. Finally, ongoing intramural research at the NETL will insure the brokering of environmental data necessary to insure safe gas development.

Natural Gas Hydrates.—Gas hydrates are the largest source of natural gas, methane, on Earth. Hydrates are ubiquitous on the continental shelves of all major continents and are, therefore, a globally distributed fuel resource. Hydrates are also abundant in arctic sediments. Much research has been done for hydrates and their character and distribution is well known. However, there is still research necessary in hydrate stability, the environmental systems in which they exist, and in the best, most efficient, most environmentally safe method of production. The United States has led global hydrate research, but the world is beginning to develop hydrates for energy. It is important for our Nation to maintain a key role in overall hydrates research. I recommend a $15 million 5-year program, $3 million annually, to continue extramural university research and intramural National Energy Technology Laboratory research programs.

PREPARED STATEMENT OF THE WORCESTER POLYTECHNIC INSTITUTE

We have been working with the Department of Energy (DOE) National Energy Technology Laboratory (NETL) for several years developing technology which is efficient and economical for simultaneous hydrogen production and carbon dioxide sequestration. The project has been very successful and is in the final stage of development and commercialization. The project has provided employment opportunity for 8–10 people. The most recent two projects are DE–FC26–07NT43058 (Project title: Composite Pd and Pd Alloy Porous Stainless Steel Membranes for Hydrogen Production and Process Intensification) and Phase I of DE–FE0004895 (Project title: Engineering Design of Advanced H_2–CO_2 Pd and Pd/Alloy Composite Membrane Separations and Process Intensification). We have achieved amazing success for the Phase I project and is ready to move into Phase II to construct pilot scale unit for the production of 100 pounds hydrogen per day and eventually to Phase III to design a plant for the production of 5 tons hydrogen per day. Unfortunately, the funding for Phase II and Phase III was cut and the project will be terminated. This untimely termination of the project not only causes people to lose their employment but also the United States to miss the opportunity to be a leader in simultaneous hydrogen production and carbon dioxide sequestration technology. In addition, it is sad that the technology is so successful due to the successful investment made by the DOE in the past several years has to be discontinued and set us back for several years. Therefore, I would like to urge the subcommittee to restore the appropriation to allow the project to continue and to provide the much needed employment. Moreover, the continuation of the project not only make good use of the U.S. investment already made in the past but also allow the technology to be commercialized to strengthen our prospect of stabilizing the fuel cost and energy independence.

Thank you for your attention and please feel contact me for more information.

DEPARTMENT OF THE INTERIOR

BUREAU OF RECLAMATION

PREPARED STATEMENT OF THE ASSINIBOINE AND SIOUX TRIBES OF THE FORT PECK RESERVATION AND DRY PRAIRIE RURAL WATER

FISCAL YEAR 2013 BUDGET REQUEST

The Assiniboine and Sioux Tribes of the Fort Peck Reservation and Dry Prairie Rural Water greatly appreciate $7.5 million that is included in the Bureau of Reclamation's (BOR) fiscal year 2013 budget request to continue construction of the Fort Peck Reservation Rural Water System. However, this level of funding is far below the need and project capacity for fiscal year 2013. Thus, we respectfully request $29 million within BOR fiscal year 2013 rural water program for this project, which will enable us to complete this project within the authorization time.

Fiscal year 2013 funds will be used to construct critical elements of the Fort Peck Reservation Rural Water System, Montana, (Public Law 106–382, October 27, 2000). The amount requested is based on need to complete transmission pipelines across the Fort Peck Indian Reservation and deliver regional water to the Reservation and Dry Prairie. The request is within capability to spend funds in fiscal year 2013 as set out in Table 1.

Good construction progress has been made on the Reservation and will continue into 2013. By the end of fiscal year 2012, the project will:

—complete the main transmission pipelines from the water treatment plant (WTP) to Wolf Point;
—complete the main transmission system from Wolf Point to Frazer;
—complete the main transmission system from Poplar to Brockton;
—nearly complete the main transmission system from Brockton to the Big Muddy River, the first interconnection point with Dry Prairie;
—serve rural homes of tribal members and others between Brockton and Frazer, that, when complete, will serve 75 percent of the Reservation design population with safe and adequate water; and
—complete the Fort Kipp interim water project, poorest water quality in the region.

Dry Prairie has continued to extend distributions projects in Valley County on the west side of the project and in Roosevelt and Sheridan Counties on the east side and has added several hundred new users.

TABLE 1.—FISCAL YEAR 2013 FUNDING REQUEST,
FORT PECK RESERVATION RURAL WATER SYSTEM (PUBLIC LAW 106–382)

[In thousands of dollars]

Sponsor/Project Feature	Federal	Non-Federal	Total
FORT PECK TRIBES (MAIN TRANSMISSION PIPELINES)			
Brockton to Big Muddy Mainline	725	.....	725
Brockton to Big Muddy Zone 1 Branches	750	.....	750
Wolf Point to Poplar Zone 1 Branches	1,425	.....	1,425
Wolf Point to Frazer Zone 1 Branches	3,905	.....	3,905
Frazer to Porcupine Creek	8,346	.....	8,346
FP Electrical, Meters, SCADA	2,114	.....	2,114
Subtotal	17,265	.....	17,265
DRY PRAIRIE (MAIN TRANSMISSION PIPELINES AND BRANCHES)			
E Medicine Lake	1,883	595	2,478
ML to Plentywood	2,333	737	3,070
Big Muddy to Culbertson	108	34	142

TABLE 1.—FISCAL YEAR 2013 FUNDING REQUEST,—Continued
FORT PECK RESERVATION RURAL WATER SYSTEM (PUBLIC LAW 106–382)

[In thousands of dollars]

Sponsor/Project Feature	Federal	Non-Federal	Total
FP Boundary to Scobey	7,499	2,368	9,867
DP Electrical, Meters, Easements	752	238	990
Subtotal	11,823	3,734	15,557
Total	29,088	3,734	32,822

FUNDING STATUS AND NEEDS

As shown in Table 2, the project will be 44-percent complete at the end of fiscal year 2012 this includes the completion of the regional WTP. The construction contract for the final phase will be completed in mid-year 2012. The Project has also completed:

—the extension of the raw water pipeline from the regional intake to the new WTP;
—the pipeline between the new WTP and the tribal headquarter community of Poplar;
—the pipeline between the WTP and the community of Wolf Point; and
—part of the project from Wolf Point to Frazer.

TABLE 2.—FUNDING STATUS AND NEEDS

[Dollars in thousands]

Total Federal funding authority (October 2011)	$295,719
Federal funds appropriated through fiscal year 2012:	
Energy and Water Appropriations	$83,532
ARRA Allocation	$46,249
Total	$129,781
Percent complete	43.89
Amount remaining after fiscal year 2012:	
Total authorized (October 2010)	$165,938
Overhead adjustment for extension to fiscal year 2020	$215,579
Adjusted for inflation to fiscal year 2020 at 4.54% annually	$261,903
Years to complete	8
Average annual required to end in fiscal year 2020, requires amendment to extend	$32,738
Fiscal year 2013 amount requested	$29,088

While the project has made great strides and efficiently used every $1 made available to get to where we are, we are still less than 50-percent complete, which translates into approximately $166 million (in 2010 dollars) of construction that must be completed. Currently, the project is $13 million underbudget and can be completed within the authorized construction ceiling if appropriations are adequate to complete on the statutory schedule of 2015, which we recognize as not realistic. However, the cost of extending the project construction to fiscal year 2020, for example, 5 years beyond the authorized ceiling, is an additional $50 million. We urge the Congress to address the problem of inadequate budgeting of projects that are well advanced in construction.

PROPOSED ACTIVITIES

The fiscal year 2013 request ($29.088 million) is needed to properly utilize the WTP and distribute water to all communities along the main transmission line within the Fort Peck Indian Reservation and is within the capability of the project. The fiscal year 2013 funds will:

Fort Peck Indian Reservation
—complete the main transmission pipelines along the southern boundary of the project;
—serve the Reservation communities and all rural homes within the first pressure zone along the main transmission throughout the Reservation; and
—permit delivery of water outside the Reservation to improve water quality and operation within the reservation by:
—reducing flushing needs and costs;
—reducing disinfection needs and costs; and
—reducing potential for formation of disinfectant by-products.
Dry Prairie
—initiate construction of pipeline from northern boundary of Reservation to Scobey; and
—complete the main transmission pipeline and branches from Medicine Lake to Plentywood.
Jobs
—create an estimated 233 full-time equivalent (FTE) construction jobs in an area of Montana with low per capita income, high unemployment, and high underemployment (based on 8 FTEs per $1 million).

ADMINISTRATION'S SUPPORT

The project has reached 44-percent completion over a period of 12 years and needs greater funding support to complete the project between 2015 and 2020. Congressional support is needed for the authorized BOR rural program to complete projects in a more timely manner.

The tribes and Dry Prairie have worked extremely well and closely with BOR since the authorization of the project in fiscal year 2000. The Commissioner, Regional and Area Office of BOR have been consistently in full agreement with the need, scope, total costs, and the ability to pay analysis that supported the Federal and non-Federal cost shares. There have been no areas of disagreement or controversy in the formulation or implementation of the project. As stated above, the project is under budget currently by more than $13 million.

Cooperative agreements have been developed and executed between BOR and the tribes and between BOR and Dry Prairie. Those cooperative agreements carefully set out goals, standards, and responsibilities of the parties for planning, design, and construction. All plans and specifications are subject to review by BOR pursuant to the cooperative agreements. The sponsors collaborate to undertake activities that assure proper oversight and approval by BOR. Each year the tribes and Dry Prairie, in accordance with the cooperative agreements, develop a work plan setting out the planning, design, and construction activities, and the allocation of funding to be utilized on each project feature.

Clearly, the Fort Peck Reservation Rural Water System is well-supported by BOR. The Congress authorized the project based on the Final Engineering Report that was formulated in full cooperation and collaboration with BOR, and major project features are successfully under construction with excellent oversight by the Agency.

PREPARED STATEMENT OF AURORA WATER

Dear Chairwoman Feinstein and Senator Alexander: I request your support for an appropriation for fiscal year 2013 of $8,387,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region, consistent with the President's recommended budget. Substantial non-Federal cost-sharing funding is occurring pursuant to Public Law 106–392, as amended. This appropriation will allow continued funding in fiscal year 2013 for the Upper Colorado River Endangered Fish Recovery Program and the San Juan River Basin Recovery Implementation Program as authorized by Public Law 106–392. These two successful ongoing cooperative partnership programs involve the States of Colorado, New Mexico, Utah, and Wyoming; Indian tribes; Federal agencies; and water, power, and environmental interests.

The requested Federal appropriations are critically important to these efforts moving forward. The past support of your subcommittee has greatly facilitated the success of these multistate, multiagency programs. I thank you for the subcommittee's past support and request the subcommittee's assistance for fiscal year 2013 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

PREPARED STATEMENT OF BOARD OF WATER WORKS OF PUEBLO, COLORADO

Dear Chairwoman Feinstein and Senator Alexander: I request your support for an appropriation for fiscal year 2013 of $8,387,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region, consistent with the President's recommended budget. Substantial non-Federal cost-sharing funding is occurring pursuant to Public Law 106–392, as amended. This appropriation will allow continued funding in fiscal year 2013 for the Upper Colorado River Endangered Fish Recovery Program and the San Juan River Basin Recovery Implementation Program as authorized by Public Law 106–392. These two successful ongoing cooperative partnership programs involve the States of Colorado, New Mexico, Utah, and Wyoming; Indian tribes; Federal agencies; and water, power, and environmental interests.

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PREPARED STATEMENT OF CENTRAL UTAH WATER CONSERVANCY DISTRICT

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PREPARED STATEMENT OF CITY OF FARMINGTON

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PREPARED STATEMENT OF COLORADO RIVER BASIN SALINITY CONTROL FORUM

Waters from the Colorado River are used by approximately 35 million people for municipal and industrial purposes and used to irrigate approximately 4 million acres in the United States. Natural and man-induced salt loading to the Colorado River creates environmental and economic damages. The Bureau of Reclamation

(BOR) has estimated the current quantifiable damages at about $300 million per year. The Congress authorized the Colorado River Basin Salinity Control Program (Program) in 1974 to offset increased damages caused by continued development and use of the waters of the Colorado River. Modeling by BOR indicates that the quantifiable damages would rise to more than $500 million by the year 2030 without continuation of the Program. The Congress has directed the Secretary of the Interior to implement a comprehensive program for minimizing salt contributions to the Colorado River. BOR serves as the lead Federal agency in implementing the program. BOR primarily institutes salinity control through its Basinwide Program. Funding levels have fallen behind in recent years, and a funding level of $14.5 million is required in fiscal year 2013 to prevent further degradation of the quality of the Colorado River and increased downstream economic damages.

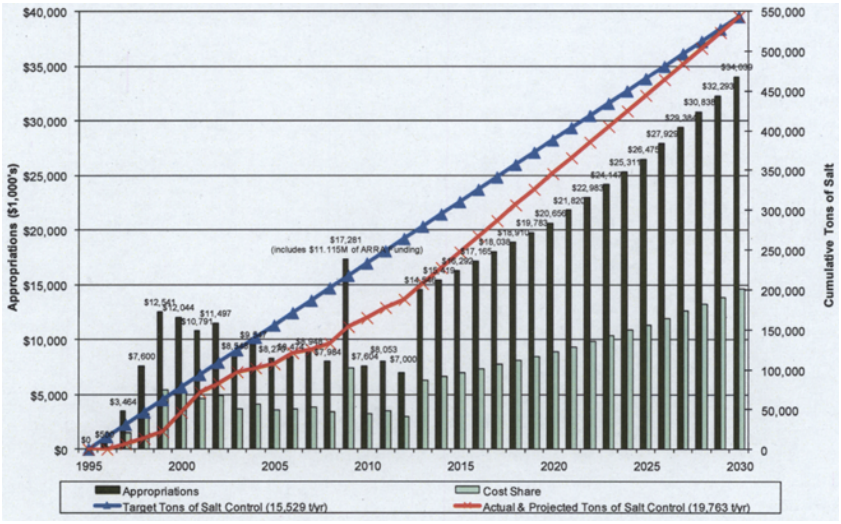
Environmental Protection Agency (EPA) has identified that more than 60 percent of the salt load of the Colorado River comes from natural sources. The majority of land within the Colorado River Basin is administered by Bureau of Land Management (BLM). In implementing the Colorado River Basin Salinity Control Act (Act) in 1974, the Congress recognized that most of the salts in the Colorado River originate from federally owned lands. Title I of the Salinity Control Act deals with the United States commitment to the quality of waters being delivered to Mexico. Title II of the Act deals with improving the quality of the water delivered to U.S. users. This testimony deals specific with title II efforts. In the early years of the program, BOR implemented salinity control in large projects which were funded with specific line item amounts. In 1995, the Congress amended the act and created BOR's Basinwide Program. Under this program, BOR funds proposals which will decrease the salt load to the Colorado River. Most of the received proposals target off-farm irrigation distribution systems such as canals and laterals. It is generally more efficient for BOR to perform the off-farm distribution system improvements prior to Natural Resources Conservation Service (NRCS) treating the on-farm acres with salinity control practices (i.e., BOR pipe a canal or lateral prior to NRCS putting a pressurized sprinkler system on farm). Shortfalls in recent basinwide funding have led to inefficiencies in the implementation of the overall program. The funding amount identified above and in the graph below are required to get the Basinwide Program back on pace with the overall program implementation.

Concentrations of salt in the Colorado River cause approximately $300 million in quantified damages and significantly more in unquantified damages in the United States and result in poor water quality for United States users. Damages occur from:

—a reduction in the yield of salt-sensitive crops and increased water use for leaching in the agricultural sector;
—a reduction in the useful life of galvanized water pipe systems, water heaters, faucets, garbage disposals, clothes washers, and dishwashers, and increased use of bottled water and water softeners in the household sector;
—an increase in the cost of cooling operations and the cost of water softening and a decrease in equipment service life in the commercial sector;
—an increase in the use of water and the cost of water treatment, and an increase in sewer fees in the industrial sector;
—a decrease in the life of treatment facilities and pipelines in the utility sector;
—difficulty in meeting wastewater discharge requirements to comply with National Pollutant Discharge Elimination System permit terms and conditions and an increase in desalination and brine disposal costs due to accumulation of salts in groundwater basins; and
—increased use of imported water for leaching and cost of desalination and brine disposal for recycled water.

The Colorado River Basin Salinity Control Forum (Forum) is composed of gubernatorial appointees from Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming. The Forum is charged with reviewing the Colorado River's water quality standards for salinity every 3 years. In so doing, it adopts a Plan of Implementation consistent with these standards. The Plan of Implementation, as adopted by the States and approved by EPA, calls for 368,000 tons of additional salinity control measures to be implemented by BOR by 2030, or approximately 20,000 tons of new control each year. Based on current cost levels, BOR's funding under its Basinwide Program needs to be $14.5 million. The level of appropriation requested in this testimony is in keeping with the adopted Plan of Implementation. If adequate funds are not appropriated, significant damages from the higher salt concentrations in the water will be more widespread in the United States and Mexico.

BASINWIDE PROGRAM: FUNDING BASED ON CONTROLLING 19,763 T/YR BEGINNING IN FISCAL YEAR 2013



In summary, implementation of salinity control practices through BOR's Basinwide Program has proven to be a very cost-effective method of controlling the salinity of the Colorado River and is an essential component to the overall Colorado River Basin Salinity Control Program. Continuation of adequate funding levels for salinity within this program will prevent the water quality of the Colorado River from further degradation and significant increases in economic damages to municipal, industrial, and irrigation users.

PREPARED STATEMENT OF THE COLORADO RIVER BOARD OF CALIFORNIA

This testimony is in support of fiscal year 2013 funding for the Department of the Interior for the title II Colorado River Basin Salinity Control Act of 1974 (Public Law 93–320). In the Act, the Congress designated the Department of the Interior, Bureau of Reclamation (BOR) to be the lead agency for salinity control in the Colorado River Basin. For nearly 28 years this very successful and cost-effective program has been carried out pursuant to the Colorado River Basin Salinity Control Act and the Clean Water Act (Public Law 92–500). California's Colorado River water users are presently suffering economic damages in the hundreds of millions of dollars per year due to the River's salinity.

The Colorado River Board of California (Board) is the State agency charged with protecting California's interests and rights in the water and power resources of the Colorado River system. In this capacity, California participates along with the other six Colorado River Basin states through the Colorado River Basin Salinity Control Forum (Forum), the interstate organization responsible for coordinating the Basin States' salinity control efforts. In close cooperation with the U.S. Environmental Protection Agency (EPA) and pursuant to requirements of the Clean Water Act, the Forum is charged with reviewing the Colorado River's water quality standards every 3 years. The Forum adopts a Plan of Implementation consistent with these water-quality standards. The level of appropriation being supported by this testimony is consistent with the Forum's "2011 Plan of Implementation" for continued salinity control efforts within the Colorado River Basin. If adequate funds are not appropriated to BOR's Basinwide Program, significant damages associated with increasing salinity concentrations of Colorado River water will become more widespread in the United States and Mexico.

The Plan of Implementation, as adopted by the States and approved by EPA, calls for 368,000 tons of additional salinity control measures to be implemented by BOR by 2030, or approximately 20,000 tons of additional salinity control measures each year. Based on current program cost levels, BOR's funding under its Basinwide Pro-

gram needs to be at least $14.5 million. This level of appropriation requested in this testimony is in keeping with the adopted "2011 Plan of Implementation".

Waters from the Colorado River are used by approximately 35 million people for municipal and industrial purposes and used to irrigate approximately 4 million acres of agricultural lands in the United States. Currently, the salinity concentration of Colorado River water causes about $300 million in quantifiable damages in the United States annually. Economic and hydrologic modeling by BOR indicates that the quantifiable damages could rise to more than $500 million by the year 2030 without the continuation of Basinwide salinity control measures as identified in the "2011 Plan of Implementation". Significant unquantified damages also occur. For example, damages occur from:

—a reduction in the yield of salt-sensitive crops and increased water use for leaching in the agricultural sector;

—a reduction in the useful life of galvanized water pipe systems, water heaters, faucets, garbage disposals, clothes washers, and dishwashers, and increased use of bottled water and water softeners in the household sector;

—an increase in the use of water for cooling, and the cost of water softening, and a decrease in equipment service life in the commercial sector;

—an increase in the use of water and the cost of water treatment, and an increase in sewer fees in the industrial sector;

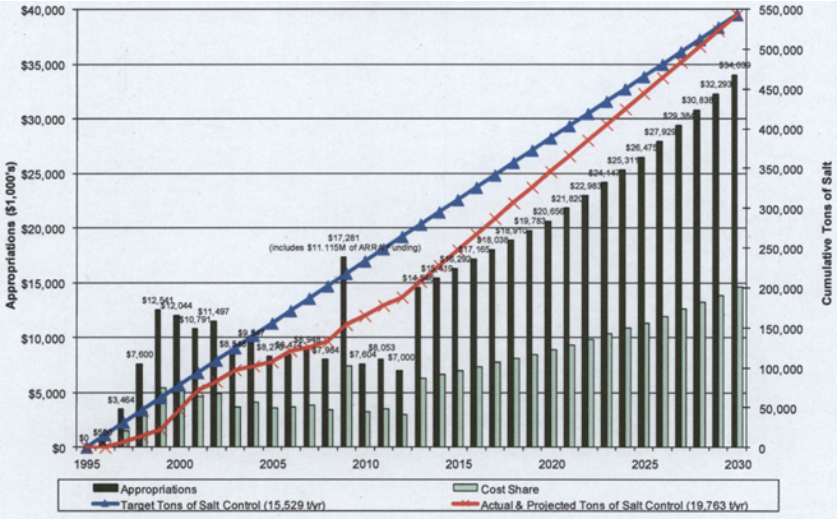
—a decrease in the life of treatment facilities and pipelines in the utility sector;

—difficulty in meeting wastewater discharge requirements to comply with National Pollutant Discharge Elimination System permit terms and conditions, an increase in desalination and brine disposal costs due to accumulation of salts in groundwater basins, and fewer opportunities for recycling and reuse of the water due to groundwater quality deterioration; and

—increased use of imported water for leaching and the cost of desalination and brine disposal for recycled water.

Some of the most cost-effective salinity control opportunities occur when BOR can improve irrigation delivery systems in a coordinated fashion with the activities of the U.S. Department of Agriculture's (USDA) programs working with landowners to improve on-farm irrigation systems. With the USDA's Environmental Quality Incentive Program, more on-farm funds are available and it continues to be important to ensure that there are adequate BOR funds available to maximize BOR's effectiveness in addressing water delivery system improvements. Shortfalls in recent Basinwide Program funding have led to inefficiencies in the implementation of the overall salinity control program. The funding amount identified above, and in the following graph, are required to get the Basinwide Program back on pace with the implementation schedule identified in the "2011 Plan of Implementation".

BASINWIDE PROGRAM: FUNDING BASED ON CONTROLLING 19,763 T/YR BEGINNING IN FISCAL YEAR 2013



In addition, the Colorado River Board recognizes that the Federal Government has made significant commitments to the Republic of Mexico and to the seven Colorado River Basin States with regard to the delivery of quality water pursuant to the 1944 Water Treaty with Mexico. In order for those commitments to be honored, it is essential that in fiscal year 2013, and in future fiscal years, that the Congress provide funds to the BOR for the continued operation of current projects.

The Colorado River is, and will continue to be, a major and vital water resource to the nearly 20 million residents of southern California, including municipal, industrial, and agricultural water users in Ventura, Los Angeles, San Bernardino, Orange, Riverside, San Diego, and Imperial counties. The protection and improvement of Colorado River water quality through an effective salinity control program will avoid the additional economic damages to users in California and the other States that rely on the Colorado River.

PREPARED STATEMENTS OF THE COLORADO RIVER ENERGY DISTRIBUTORS ASSOCIATION

Dear Chairwoman Feinstein and Senator Alexander: We request your support for an appropriation for fiscal year 2013 of $8,387,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region, consistent with the President's recommended budget. Substantial non-Federal cost-sharing funding is occurring pursuant to Public Law 106–392, as amended. This appropriation will allow continued funding in fiscal year 2013 for the Upper Colorado River Endangered Fish Recovery Program and the San Juan River Basin Recovery Implementation Program as authorized by Public Law 106–392. These two successful ongoing cooperative partnership programs involve the States of Colorado, New Mexico, Utah, and Wyoming; Indian tribes; Federal agencies; and water, power, and environmental interests.

The requested Federal appropriations are critically important to these efforts moving forward. The past support of your subcommittee has greatly facilitated the success of these multistate, multiagency programs. We thank you for the subcommittee's past support and request the subcommittee's assistance for fiscal year 2013 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

Dear Chairwoman Feinstein and Ranking Member Alexander: On behalf of the Colorado River Energy Distributors Association (CREDA), I respectfully request that the subcommittee appropriate $11,387,000 to maintain capital projects and base funding activities for the Upper Colorado River and San Juan River Recovery Implementation Programs (RIP).

CREDA is a nonprofit organization representing consumer-owned utilities, political subdivisions, State agencies, tribes and rural electric cooperative utilities in Arizona, Colorado, Nevada, New Mexico, Utah, and Wyoming, serving more than 4 million electric consumers. CREDA's member utilities purchase more than 85 percent of the power produced by the Glen Canyon, Flaming Gorge, Aspinall Unit Dams, and other features of the Colorado River Storage Project (CRSP).

As purchasers of the power generated at CRSP facilities, CREDA's members pay more than 95 percent of the costs of these multipurpose projects. Changes in the operation of these facilities to provide for the recovery of the endangered fish have resulted in significant costs to the power users.

CREDA members are willing participants in the recovery programs, which have been a model of Federal/non-Federal collaboration and participation. However, the most recent authorization (Public Law 106–392) to use CRSP power revenues to provide annual base funding for the RIP expired at the end of fiscal year 2011. There is currently no legislative authorization to use CRSP power revenues for other than those activities authorized by Public Law 106–392. However, stakeholders continue to seek legislation to extend the use of CRSP power revenues for base funding from fiscal year 2012–2019.

CREDA is extremely troubled by the administration's fiscal year 2013 Bureau of Reclamation (BOR) budget which says, "In the absence of legislation to extend this specific authority, BOR may rely on existing authority to continue the use of CRSP power revenues or use appropriated funds to ensure full base funding." It is inappropriate for the administration to continue use of power revenues without a specific authorization, and despite repeated inquiries CREDA has not been informed by BOR what "existing authority" is being referred to in the budget request language.

To maintain uninterrupted annual/base funding for the RIP, CREDA supports Federal appropriations in the amount of $11,387,000 to fund not only the administration's request for capital projects, but an additional nonreimbursable $3 million for base funding activities. CREDA requests that, in the absence of a specific authorization, the subcommittee expressly prohibit the use of CRSP power revenues for activities beyond those authorized by Public Law 106–392.

PREPARED STATEMENT OF COLORADO SPRINGS UTILITIES

Dear Chairwoman Feinstein and Senator Alexander: I request your support for an appropriation for fiscal year 2013 of $8,387,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region, consistent with the President's recommended budget. Substantial non-Federal cost-sharing funding is occurring pursuant to Public Law 106–392, as amended. This appropriation will allow continued funding in fiscal year 2013 for the Upper Colorado River Endangered Fish Recovery Program and the San Juan River Basin Recovery Implementation Program as authorized by Public Law 106–392. These two successful ongoing cooperative partnership programs involve the States of Colorado, New Mexico, Utah, and Wyoming; Indian tribes; Federal agencies; and water, power, and environmental interests.

The requested Federal appropriations are critically important to these efforts moving forward. The past support of your subcommittee has greatly facilitated the success of these multistate, multiagency programs. I thank you for the subcommittee's past support and request the subcommittee's assistance for fiscal year 2013 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

PREPARED STATEMENT OF THE COLORADO WATER CONGRESS

Dear Chairwoman Feinstein and Senator Alexander: I request your support for an appropriation for fiscal year 2013 of $8,387,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region, consistent with the President's recommended budget. Substantial non-Federal cost-sharing funding is occurring pursuant to Public Law 106–392, as amended. This appropriation will allow continued funding in fiscal year 2013 for the Upper Colorado River Endangered Fish Recovery Program and the San Juan River Basin Recovery Implementation Program as authorized by Public Law 106–392. These two successful ongoing cooperative partnership programs involve the States of Colorado, New Mexico, Utah, and Wyoming; Indian tribes; Federal agencies; and water, power, and environmental interests.

The requested Federal appropriations are critically important to these efforts moving forward. The past support of your subcommittee has greatly facilitated the success of these multistate, multiagency programs. I thank you for the subcommittee's past support and request the subcommittee's assistance for fiscal year 2013 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

PREPARED STATEMENT OF DENVER WATER

Dear Chairwoman Feinstein and Senator Alexander: On behalf of Denver Water, I request your support for an appropriation for fiscal year 2013 of $8,387,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region, consistent with the President's recommended budget. Substantial non-Federal cost-sharing funding is occurring pursuant to Public Law 106–392, as amended. This appropriation will allow continued funding in fiscal year 2013 for the Upper Colorado River Endangered Fish Recovery Program and the San Juan River Basin Recovery Implementation Program as authorized by Public Law 106–392. These two successful ongoing cooperative partnership programs involve the States of Colorado, New Mexico, Utah, and Wyoming; Indian tribes; Federal agencies; and water, power, and environmental interests.

The requested Federal appropriations are critically important to these efforts moving forward. The past support of your subcommittee has greatly facilitated the success of these multistate, multiagency programs. I thank you for the subcommittee's past support and request the subcommittee's assistance for fiscal year 2013

funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

PREPARED STATEMENT OF GRAND VALLEY WATER USERS' ASSOCIATION

Dear Chairwoman Feinstein and Senator Alexander: I request your support for an appropriation for fiscal year 2013 of $8,387,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region, consistent with the President's recommended budget. Substantial non-Federal cost-sharing funding is occurring pursuant to Public Law 106–392, as amended. This appropriation will allow continued funding in fiscal year 2013 for the Upper Colorado River Endangered Fish Recovery Program and the San Juan River Basin Recovery Implementation Program as authorized by Public Law 106–392. These two successful ongoing cooperative partnership programs involve the States of Colorado, New Mexico, Utah, and Wyoming; Indian tribes; Federal agencies; and water, power, and environmental interests.

The requested Federal appropriations are critically important to these efforts moving forward. The past support of your subcommittee has greatly facilitated the success of these multistate, multiagency programs. I thank you for the subcommittee's past support and request the subcommittee's assistance for fiscal year 2013 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

PREPARED STATEMENT OF IRRIGATION AND ELECTRICAL DISTRICTS ASSOCIATION OF ARIZONA

The Irrigation and Electrical Districts Association of Arizona (IEDA) is pleased to present written testimony regarding the fiscal year 2013 proposed budgets for the Bureau of Reclamation (BOR) and the Western Area Power Administration (WAPA).

IEDA is an Arizona nonprofit association whose 25 members and associate members receive water from the Colorado River directly or through the facilities of the Central Arizona Project (CAP) and purchase hydropower from Federal facilities on the Colorado River either directly from WAPA or, in the case of the Boulder Canyon Project, from the Arizona Power Authority, the State agency that markets Arizona's share of power from Hoover Dam. IEDA was founded in 1962 and continues in its 50th year to represent water and power interests of Arizona political subdivisions and other public power providers and their consumers.

BUREAU OF RECLAMATION

IEDA has reviewed the BOR budget and found, not unexpectedly, that it does not address the enormous backlog of needs of the agency's aging infrastructure. We support the important projects and programs that are included in the proposed budget. We are especially mindful that the Yuma Desalting Plant is an essential element of the problem solving mechanisms being put in place for the Colorado River and especially the Lower Colorado River. Problem solving on the Lower Colorado River will be substantially improved by using the plant as a management element.

We also wish to call to the subcommittee's attention to several other issues of concern to us and Arizona water and power customers.

First, we are concerned that the Congress has not extended the Upper Colorado River Recovery Implementation Plan. That Plan focuses on recovering three endangered fish in the Colorado River and its tributaries above Lake Powell. It is a three-party agreement:

—Federal agencies with appropriations;
—monies from the four Upper Colorado River Basin States (Colorado, New Mexico, Utah, and Wyoming); and
—power revenues from our members and other Colorado River Storage Project customers.

Without the extension there are no Federal appropriation dollars to continue the program. This breaks the "deal" that we cut to keep the Endangered Species Act (ESA) from being used to attack our water and hydropower. No money, no plan. BOR appropriations should be provided but, if not, the subcommittee should recognize that the Plan is suspended and neither the power users nor the States have any obligation to continue it. BOR shouldn't try to backdoor money for this use. The subcommittee should hold them accountable.

Second, we continue to be concerned about BOR's spending on post-9/11 security costs. The Congress gave BOR specific directions on this subject several years ago.

That included adjustments for declines in the Consumer Price Index and non-reimbursability of certain costs. However, the Congress did not instruct BOR with regard to how this program should be implemented. Like many reaction programs, this program experienced some overreaction. We believe a close review of the ongoing levels of staffing and other expenses is in order.

WESTERN AREA POWER ADMINISTRATION

IEDA has reviewed the proposed budget for the WAPA. We wish to call the subcommittee's attention to the limited appropriation for construction funding proposed for fiscal year 2013. We believe this shortfall is irresponsible. WAPA has more than 17,000 miles of transmission line for which it is responsible. It has on the order of 14,000 megawatts of generation being considered for construction that would depend on that Federal network. The existing transmission facilities cannot handle all of these proposals. Moreover, the region is projected, by all utilities operating in the region, to be short of available generation in the 10-year planning window that utilities and Western use.

The appropriation proposed in this category cannot come even close to keeping existing transmission construction going. Repairs and replacements will have to be postponed and considerable hardships to local utilities that depend on the Federal network are bound to occur. In WAPA's Desert Southwest Region, our region, work necessary just to maintain system reliability will have to be postponed.

The President's budget, once again, assumes that unmet capital formation needs will be made up by WAPA's customers. We would be the first to support additional customer financing of Federal facilities and expenses through the Contributed Funds Act authority under BOR law that is available to WAPA. However, programs utilizing non-Federal capital formation require years to develop. One such program that was proposed by the Arizona Power Authority in a partnership with Western died because it was enmeshed in bureaucratic red tape at the Department of Energy. There is no way that WAPA customers can develop contracts, have them reviewed, gain approval of these contracts from WAPA and their own governing bodies, find financing on Wall Street and have monies available for the next fiscal year. It is just impossible, especially in this economy. Moreover, scoring and "cut/go" rules are providing major disincentives for WAPA's customers and others in this regard.

There also are impediments to using existing Federal laws in facilitating non-Federal financing of Federal facilities and repairs to Federal facilities and the Congress should examine them. Artificially designating customer funding for construction, in lieu of real solutions, is bad public policy and should not be countenanced. We urge the subcommittee to restore a reasonable amount of additional construction funding to WAPA so it can continue to do its job in keeping its transmission systems functioning and completing the tasks that it has in the pipeline that are critical to its customers throughout the West.

However, there is one subject about which we urge you not to provide funding. On March 16, 2012, Secretary of Energy Steven Chu announced that WAPA would be participating in a gigantic Energy Imbalance Market (EIM) in the Western United States. This is an untested, unanalyzed, unproven boondoggle being promoted to force utilities in the West to add layer upon layer of bureaucracy over their existing operations, when doing so elsewhere has only escalated electricity costs and hampered economic recovery. We urge you to expressly prohibit WAPA from funding this attack on the West's economy and require peer-reviewed scientific and economic analysis before any money is spent to facilitate WAPA's participation in an EIM.

CONCLUSION

Thank you for the opportunity to submit this written testimony. If we can provide any additional information or be of any other service to the subcommittee, please do not hesitate to get in touch with us.

PREPARED STATEMENT OF THE JICARILLA APACHE NATION

Dear Chairwoman Feinstein and Senator Alexander: On behalf of the Jicarilla Apache Nation, I request your support for an appropriation for fiscal year 2013 of $8,387,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region, consistent with the President's recommended budget. Substantial non-Federal cost-sharing funding is occurring pursuant to Public Law 106–392, as amended. This appropriation will allow continued funding in fiscal year 2013 for the Upper Colorado River Endangered Fish Recovery Program and the San Juan River Basin

Recovery Implementation Program as authorized by Public Law 106–392. These two successful ongoing cooperative partnership programs involve the States of Colorado, New Mexico, Utah, and Wyoming; Indian tribes; Federal agencies; and water, power, and environmental interests.

Jicarilla has been an active participant in these programs since 1992 and the requested Federal appropriations are critically important to these efforts moving forward. The past support of your subcommittee has greatly facilitated the success of these multistate, multiagency programs. I thank you for the subcommittee's past support and request the subcommittee's assistance for fiscal year 2013 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

PREPARED STATEMENT OF THE OGLALA SIOUX RURAL WATER SUPPLY SYSTEM; WEST RIVER/LYMAN JONES RURAL WATER SYSTEM; ROSEBUD RURAL WATER SYSTEM; AND THE LOWER BRULE RURAL WATER SYSTEM

FISCAL YEAR 2013 REQUEST

The Mni Wiconi Project beneficiaries respectfully request $23.137 million in appropriations for construction and $12.224 million for operation, maintenance, and replacement (OMR) activities for fiscal year 2012, a total request of $35.361 million:

FISCAL YEAR 2013 TOTAL REQUEST

	Amount
Construction	$23,137,000
OMR	12,224,000
Total	35,361,000

The construction request includes $0.960 million for Bureau of Reclamation oversight, and the OMR request includes $1.447 million for oversight.

CONSTRUCTION FUNDS

Construction funds would be utilized as follows:

Project area	Construction request fiscal year 2013
Oglala Sioux Rural Water Supply System:	
Core	[1]
Distribution	$13,838,000
West River/Lyman-Jones RWS	2,231,000
Rosebud RWS	7,068,000
Total	23,137,000

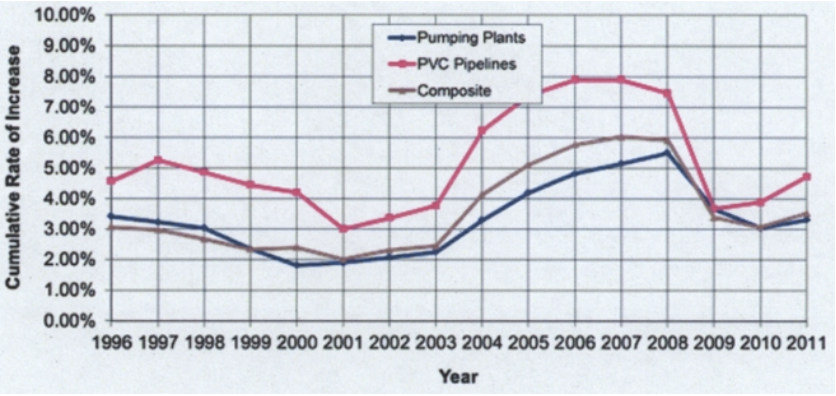
[1] Complete.

As shown in the table below, the project will be 95-percent complete at the end of fiscal year 2012. Construction funds remaining after fiscal year 2012 will total $23.137 million within the current authorization (in October 2010 dollars). The funds will not be adequate to complete the project as originally planned.

Total Federal Construction Funding (October 2011 dollars)	$471,300,000
Estimated Federal spent through fiscal year 2012	$448,163,000
Percent spent through fiscal year 2012	95.09%
Amount remaining after 2012 (estimated 2013 dollars)	$23,137,000
Completion fiscal year (Statutory Fiscal Year 2013; Public Law 110–161)	2013

Cost indexing over the last 5 years has averaged 4.72 percent for pipelines and last year was 7.83 percent. Pipelines are the principal components yet to be completed (see following chart).

RATE OF CONSTRUCTION COST INCREASE FOR ANNUAL AND 5-YEAR RUNNING AVERAGES SINCE 1992, BUREAU OF RECLAMATION



The extension of the project from 2008 to 2013 did not provide for budgeting of Reclamation oversight, administration and other "overhead" costs, which will total $22.472 million by the end of 2013. These costs have been and will continue to be incurred at the expense of construction elements. The slow pace of budgeting and appropriations has caused the diminishment of construction elements to cover non-construction overhead costs.

The support of the administration to allocate adequate discretionary funds in fiscal year 2012 and budget adequately for fiscal year 2013 to enable the allocation of remaining authorized funds is recognized and greatly appreciated.

The request will create an estimated 210 full-time equivalent (FTE) construction jobs and 94 OMR jobs in an area of the nation with the lowest per capita income and deepest poverty.

Poverty is the harbinger of the severe healthcare crisis facing the Indian people in the Northern Great Plains. The present value of extra costs of healthcare during the lifetime of each 24,000 members of the Indian population in the Mni Wiconi Project is estimated at $1.12 to $2.25 billion (in 2010 dollars). The costs are based on extraordinarily high rates of mortality due to heart disease, cancer and diabetes. The Mni Wiconi Project has the direct effect of employing part of our unemployed and underemployed Indian population and creates the necessary infrastructure for more employment in indirect commercial and industrial development. This will reduce poverty, mortality, and the national cost burden of Indian healthcare.

OGLALA SIOUX RURAL WATER SUPPLY SYSTEM

Core System

The Oglala Sioux Tribe has completed the core system that serves all distribution systems of West River/Lyman-Jones, the Rosebud Sioux Tribe, the Lower Brule Sioux Tribe, and the Oglala Sioux Tribe.

Distribution System

The Pine Ridge Indian Reservation will continue to receive more water from the Oglala Sioux Rural Water Supply System (OSRWSS) core system in fiscal year 2012. Major segments of the main transmission system will be completed across the Reservation and connect many of the larger communities with safe and adequate drinking water. OSRWSS pipelines now deliver water from the Missouri River to the communities of Georgetown, Wanblee, Crazy Horse School, Lakota Fund Housing, and Potato Creek Community and the large number of rural homes between the communities. The communities of Hisle, Kyle, Manderson, Red Shirt, Porcupine, and Wounded Knee can be served with Missouri River water by the end of 2012.

Fiscal year 2013 will be another historic year, but considerable work remains to distribute the water supply throughout the Reservation. More than 40 percent of the project's population resides on the Pine Ridge Indian Reservation, and only 85 percent of the distribution system will be complete at the end of 2012. The Reservation public received its first Missouri River supply in 2009 after waiting 15 years for construction of core facilities to the Reservation.

Project funds in fiscal year 2013 will continue building the on-Reservation transmission system. Funding will be used for transmission and service line development east of Pine Ridge Village between Wakpamni, Batesland, and Allen and south toward the Nebraska State line. This area has been deferred in the past due to funding constraints. The supervisory control and data acquisition (SCADA) facilities will be installed with state-of-the-art electronic equipment.

As set forth above, activity on the Pine Ridge Indian Reservation in fiscal year 2013 continues to focus on constructing the transmission system that serves as the "backbone" of the Project on the Reservation from the White River in the northeast corner of the Reservation to Pine Ridge Village. The Tribe will continue focus on the disinfection requirements to blend Missouri River water and high-quality groundwater without creating harmful contaminants. State-of-the-art designs are being implemented for water quality control.

The Oglala Sioux Tribe is supportive of the funding request of other sponsors.

WEST RIVER/LYMAN-JONES RURAL WATER SYSTEM

West River/Lyman-Jones (WR/LJ) RWS projects for fiscal year 2013 include standby generation facilities, storage reservoirs, SCADA, and cold storage additions.

The upper Midwest and specifically the Mni Wiconi project area regularly experience power outages as the result of winter weather conditions. Regulatory authorities in South Dakota have recommended standby generation as the result of statewide power outages experienced during the winters of 2005–2006 and 2009–2010. The Bureau of Reclamation has concurred in the addition of standby generation to the Mni Wiconi plan of work. WR/LJ has outlined a 3-year standby generation project schedule.

Water storage needs include an elevated tower in the Reliance service area, a ground storage reservoir in Mellette County, and supplemental storage in the Elbon service area.

SCADA capability provides accurate and efficient transmission of data and allows remote control of pumping and storage facilities. The WR/LJ SCADA system will be completed using the requested funding.

Storage facilities at the Murdo and Philip operations centers will complete the building components of the WR/LJ project.

Previous Federal appropriations to the Mni Wiconi project have made possible the delivery of much needed quality water to members of the West River/Lyman-Jones RWS and to the livestock industry in the project area. This would not have been possible without State and Federal assistance.

ROSEBUD SIOUX RURAL WATER SYSTEM

The Rosebud Sioux Tribe is faced with difficult decisions on how best to use the remaining authorized construction ceiling for the Rosebud Sioux Rural Water System or Sicangu Mni Wiconi. It has been more than 20 years since the tribe completed its Needs Assessment and engineering plan. There have been significant changes in the tribe's development plans and their water resources since 1993. The use of the remaining $7.068 million in construction funding strikes a balance between recent developments and original plan developed 20 years ago.

The majority of funds will go toward completion of the Sicangu Village Pipeline. This project extends the water system to the new housing area being developed in the southern portion of the Reservation near the Nebraska border. While potential demands for this area were included in the original plan a pipeline from the north was not envisioned because it was believed that the High Plains (also known as "Ogallala") aquifer was capable of providing a reliable source of high-quality water. Development of local wells has proven otherwise and the increased demands have required bringing surface water south to the area.

While lack of sufficient yield from the aquifer is the primary problem at Sicangu Village, the problem is exacerbated by high concentrations of nitrates at two schools north of the housing area. The tribe is attempting to leverage Mni Wiconi funding with Indian Health Service and Environmental Protection Agency funds to address the issue and provide water that meets primary safe drinking water standards for the schools.

The last major project in fiscal year 2013 will be the replacement of the treatment facility for the Rosebud well field. This facility was constructed prior to Mni Wiconi and is "showing its age". While the facility has been used since 1997 as a core component of the Sicangu Mni Wiconi and even treated water that was exported to the WR/LJ service area, the Bureau's current policy does not allow for replacement under the replacement, additions, and extraordinary (RAX) maintenance program. The project completion plan proposed by the project sponsors would allow RAX fund-

ing under the OMR portion of the appropriations to be used to upgrade existing system components such as this and allow construction funds to be used for completion of the distribution system.

The remainder of the authorized ceiling and fiscal year 2013 appropriations will be used for small additions to the distribution system and service lines and connections, all of which are constructed through the Tribe's force account program.

OPERATION, MAINTENANCE, AND REPLACEMENT

The sponsors will continue to work with Reclamation to ensure that their budgets are adequate to properly operate, maintain, and replace respective portions of the core and distribution systems. The sponsors will also continue to manage OMR expenses. The administration's budget for fiscal year 2013 is virtually the same as requested by the sponsors.

FISCAL YEAR 2013 OPERATION, MAINTENANCE, AND REPLACEMENT

Project area	Request
Oglala Sioux Rural Water Supply System:	
Core	$3,440,000
Distribution	3,400,000
Lower Brule	1,560,000
Rosebud RWS	2,377,000
Reclamation	1,447,000
Total	12,224,000

The project has been treating and delivering more water each year from the OSRWSS Water Treatment Plant near Fort Pierre as construction has advanced in the Rosebud, WR/LJ, and Oglala service areas. Completion of significant core and distribution pipelines has resulted in more deliveries to more communities and rural users. The need for sufficient funds to properly operate and maintain the functioning system throughout the project has grown as the project has now reached 95-percent completion. The OMR budget must be adequate to keep pace with the system that is placed in operation.

With completion of construction imminent in fiscal year 2013, emphasis will shift to operation, maintenance, and replacement as the primary budgeting need. Adherence to a proper level of operation, maintenance, and replacement funding is manifest. Budgeting by the United States to ensure that aging features of the constructed project are protected is not only sensible but properly executes the responsibilities of the United States as trustee to the Indian people. While the budgeting by the administration was adequate this year, budgeting has not been adequate in several of the past years. The concern is that aging components of critical project facilities will not be properly repaired and replaced due to budget limitations.

The Lower Brule Rural Water System (LBRWS) is essentially complete with all major components such as the water treatment plant, booster stations, and tanks/reservoirs in full operation. As a result, LBRWS's operation and maintenance portion of the budget has reached a baseline amount to which only slight adjustments along with inflation should be made each year. The portion of the LBRWS OM&R budget that is somewhat variable is the RAX maintenance items. LBRWS will continue to work with the Bureau of Reclamation and the other sponsors to prioritize their needs and ensure that their system is operating to the standards that have been established over the past several years. With that in mind, the LBRWS request for OM&R for fiscal year 2013 is $1,560,000.

The RSRWS expanded the areas served from surface water significantly in 2011 and 2012. In 2012 the connections to provide surface water to the town of Mission were completed. Early in fiscal year 2013 the pipeline and pumping station delivering surface water to Sicangu Village will be completed. The new pumping stations increase operational costs for energy, maintenance, and personnel. In addition, energy costs increases have significantly impacted Rosebud for electrical costs and vehicle expenses. With the oldest parts of the system in service for 15 years replacement costs covered under RAX are also becoming more significant. RAX funds must be included in the Mni Wiconi Project appropriations because they are not funded through the Bureau's RAX program.

OSRWSS will incur costs of replacement and sludge removal at the water treatment plant in fiscal year 2013. The Reclamation budget does not provide for routine replacements, which threatens the capital investment in the project. OSRWSS needs

to replace 12 flocculation drives, 8 effluent valves, 2 pump variable frequency drive pumps, chemical feed pumps, and numerous other parts that Reclamation only includes in its RAX account for extraordinary, not routine maintenance. The replacement costs in our request are $958,000, which will ensure that obsolete parts are traded out. The balance of the $3.440 million request is for normal operation and maintenance. Further, OSRWSS staff will anticipate a salary adjustment to accommodate competitive wages for South Dakota.

The on-reservation OSRWSS OMR expenses will be substantially higher with higher pumping rates, unanticipated costs with pump houses repair and higher water consumption as new systems are built and communities are connected. On-reservation staff will anticipate a salary adjustment to accommodate competitive wages for South Dakota as their jobs have become more technical, which requires a higher base wage. On-reservation has not received RAX money since fiscal year 2009 so there is a back log of items that fall in RAX maintenance.

The Mni Wiconi Project tribal beneficiaries respectfully request appropriations for OMR in fiscal year 2013 in the amount of $12.224 million, which is virtually the same as the President's budget.

PREPARED STATEMENT OF THE NATURE CONSERVANCY

Dear Chairwoman Feinstein and Senator Alexander: My name is Taylor Hawes and I am the Director, Colorado River Program. I request your support for an appropriation for fiscal year 2013 of $8,387,000 to the U.S. Bureau of Reclamation (Reclamation) within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region, consistent with the President's recommended budget. Substantial non-Federal cost-sharing funding is occurring pursuant to Public Law 106–392, as amended. This appropriation will allow continued funding in fiscal year 2013 for the Upper Colorado River Endangered Fish Recovery Program and the San Juan River Recovery Implementation Program as authorized by Public Law 106–392. These two successful ongoing cooperative partnership programs involve the States of Colorado, New Mexico, Utah, and Wyoming; Indian tribes; Federal agencies; and water, power, and environmental interests.

I thank you for the subcommittee's past support and request the subcommittee's assistance for fiscal year 2013 funding to ensure Reclamation's continuing financial participation in these vitally important programs.

PREPARED STATEMENT OF THE NORTHERN COLORADO WATER CONSERVANCY DISTRICT

Dear Chairwoman Feinstein and Senator Alexander: I request your support for an appropriation for fiscal year 2013 of $8,387,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region, consistent with the President's recommended budget. Substantial non-Federal cost-share funding is occurring pursuant to Public Law 106–392 as amended. This appropriation will allow continued funding in fiscal year 2013 for the Upper Colorado River Endangered Fish Recovery Program and the San Juan River Basin Recovery Implementation Program as authorized by Public Law 106–392. These two successful, ongoing, cooperative partnership programs involve the States of Colorado, New Mexico, Utah, and Wyoming; Indian tribes; Federal agencies; and water, power, and environmental interests.

The requested Federal appropriations are critically important to these efforts moving forward. The past support of your subcommittee has greatly facilitated the success of these multistate, multiagency programs. I thank you for the subcommittee's past support and request the subcommittee's assistance for fiscal year 2013 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

PREPARED STATEMENT OF THE SAN JUAN WATER COMMISSION

Dear Chairwoman Feinstein and Senator Alexander: I request your support for an appropriation for fiscal year 2013 of $8,387,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region, consistent with the President's recommended budget. Substantial non-Federal cost-sharing funding is occurring pursuant to Public Law 106–392, as amended. This appropriation will allow continued funding in fiscal year 2013 for the Upper Colorado River Endangered Fish Recovery Program and the San Juan River Basin Recovery Implementation Program as au-

thorized by Public Law 106–392. These two successful ongoing cooperative partnership programs involve the States of Colorado, New Mexico, Utah, and Wyoming; Indian tribes; Federal agencies; and water, power, and environmental interests.

The requested Federal appropriations are critically important to these efforts moving forward. The past support of your subcommittee has greatly facilitated the success of these multistate, multiagency programs. I thank you for the subcommittee's past support and request the subcommittee's assistance for fiscal year 2013 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

PREPARED STATEMENT OF THE SOUTHERN UTE INDIAN TRIBE

Dear Chairwoman Feinstein and Senator Alexander: On behalf of the Southern Ute Indian Tribe, I am writing to request your support for an appropriation for fiscal year 2013 of $8,387,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region, consistent with the President's recommended budget. Substantial non-Federal cost-sharing funding is occurring pursuant to Public Law 106–392, as amended. This appropriation will allow continued funding in fiscal year 2013 for the Upper Colorado River Endangered Fish Recovery Program and the San Juan River Basin Recovery Implementation Program as authorized by Public Law 106–392. These two successful, ongoing, cooperative partnership programs involve the States of Colorado, New Mexico, Utah, and Wyoming; the Southern Ute Indian Tribe; the Ute Mountain Ute Indian Tribe; the Navajo Nation; the Jicarilla Apache Nation; Federal agencies; and water, power, and environmental interests.

The requested Federal appropriations are critically important to these efforts moving forward. The past support of your subcommittee has greatly facilitated the success of these multistate, multiagency programs. The Tribe thanks you for the subcommittee's past support and requests the subcommittee's assistance for fiscal year 2013 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

PREPARED STATEMENT OF THE SOUTHWESTERN WATER CONSERVATION DISTRICT

Dear Chairwoman Feinstein and Senator Alexander: I request your support for an appropriation for fiscal year 2013 of $8,387,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region, consistent with the President's recommended budget. Substantial non-Federal cost-sharing funding is occurring pursuant to Public Law 106–392, as amended. This appropriation will allow continued funding in fiscal year 2013 for the Upper Colorado River Endangered Fish Recovery Program and the San Juan River Basin Recovery Implementation Program as authorized by Public Law 106–392. These two successful ongoing cooperative partnership programs involve the States of Colorado, New Mexico, Utah, and Wyoming; Indian tribes; Federal agencies; and water, power, and environmental interests.

The requested Federal appropriations are critically important to these efforts moving forward. The past support of your subcommittee has greatly facilitated the success of these multistate, multiagency programs. I thank you for the subcommittee's past support and request the subcommittee's assistance for fiscal year 2013 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

PREPARED STATEMENT OF THE STATE OF UTAH

Dear Chairwoman Feinstein and Senator Alexander: On behalf of the State of Utah and Utah's Colorado River water users, I respectfully request your support for the appropriation to the Bureau of Reclamation for the Upper Colorado River Endangered Fish Recovery Program and the San Juan River Basin Recovery Implementation Program. These two programs are provided for in the budget line item entitled "Endangered Species Recovery Implementation Program".

The Upper Colorado and San Juan recovery programs are highly successful collaborative conservation partnerships working to recover the four species of endemic Colorado River fish on the Federal endangered species list; while at the same time water use and development have been able to continue in our growing western communities. These programs are unique efforts involving the States of New Mexico, Colorado, Utah, and Wyoming; Indian tribes; Federal agencies; and water, power,

and environmental interests. They are achieving Endangered Species Act (ESA) compliance for water projects and fully complying the interstate river compacts and the participating States' water law.

Since 1998, the two programs, collectively, have provided ESA section 7 compliance (without litigation) for more than 2,100 Federal, tribal, State, and privately managed water projects depleting more than 3.7 million acre-feet of water per year. Substantial non-Federal cost-sharing funding exceeding 50 percent is embodied in both programs.

Each year in support of these two regionwide cooperative recovery programs, the State of Utah requests the subcommittee's assistance. It is absolutely essential that fiscal year 2013 funding be provided within the Bureau of Reclamation's budget appropriation to assure that agency's continued financial participation as directed by Public Law 106–392, as amended.

On behalf of the State of Utah, I thank you for the past support and assistance of your subcommittee; it has greatly facilitated the ongoing and continuing success of these multistate, multiagency programs vital to providing water for Utah.

PREPARED STATEMENT OF THE STATE OF WYOMING

Dear Chairwoman Feinstein and Senator Alexander: I am requesting your support for fiscal year 2013 appropriations to the Bureau of Reclamation for the Upper Colorado River Endangered Fish Recovery Program and the San Juan River Basin Recovery Implementation Program. These two programs are provided for in the budget line-item entitled "Endangered Species Recovery Implementation Program". The Upper Colorado and San Juan recovery programs are highly successful collaborative conservation partnerships working to recover the four species of endemic Colorado River fish such that they can each be removed from the Federal endangered species list. At the same time, these programs have provided the means for water use and development to continue in our growing western States.

These two programs are unique efforts involving the States of Colorado, New Mexico, Utah, and Wyoming; Indian tribes; Federal agencies; and water, power, and environmental interests. They continue to achieve Endangered Species Act (ESA) compliance for Federal and non-Federal water projects and are fully complying with interstate river compacts and the participating States' water law. Recognizing the need for fiscal responsibility, I must also point out that the participants would all be spending much more in ESA-related costs in the absence of these programs.

Since 1988, these programs, collectively, have provided ESA section 7 compliance (without litigation) for more than 2,300 Federal, tribal, State, and privately managed water projects that use more than 3.72 million acre-feet of water per year. Substantial non-Federal cost-sharing, which exceeds 50 percent, is embodied in both programs.

The State of Wyoming requests the subcommittee's assistance in support of these two regionwide cooperative recovery programs each year. It is essential that fiscal year 2013 funding be provided within the Bureau of Reclamation's budget appropriation to assure that the agency can continue to meet its financial participation requirements, which were set forth in Public Law 106–392, as amended.

On behalf of the State of Wyoming, I thank you for your consideration on my request. I also thank you for the past support and assistance of your subcommittee, which have greatly facilitated the ongoing and continuing success of these multistate, multiagency programs that are vital to the recovery of the endangered fish and providing necessary water supplies for the growing Intermountain West.

PREPARED STATEMENT OF THE TRI-COUNTY WATER CONSERVANCY DISTRICT

Dear Chairwoman Feinstein and Senator Alexander: The Tri-County Water Conservancy District Board requests your support for an appropriation for fiscal year 2013 of $8,387,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region, consistent with the President's recommended budget. Substantial non-Federal cost-sharing funding is occurring pursuant to Public Law 106–392, as amended. This appropriation will allow continued funding in fiscal year 2013 for the Upper Colorado River Endangered Fish Recovery Program and the San Juan River Basin Recovery Implementation Program as authorized by Public Law 106–392. These two successful ongoing cooperative partnership programs involve the States of Colorado, New Mexico, Utah, and Wyoming; Indian tribes; Federal agencies; and water, power, and environmental interests.

The requested Federal appropriations are critically important to these efforts moving forward. The past support of your subcommittee has greatly facilitated the success of these multistate, multiagency programs. We thank you for the subcommittee's past support and request the subcommittee's assistance for fiscal year 2013 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

PREPARED STATEMENT OF THE UPPER GUNNISON RIVER WATER CONSERVANCY DISTRICT

Dear Chairwoman Feinstein and Senator Alexander: I request your support for an appropriation for fiscal year 2013 of $8,387,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region, consistent with the President's recommended budget. Substantial non-Federal cost-sharing funding is occurring pursuant to Public Law 106–392, as amended. This appropriation will allow continued funding in fiscal year 2013 for the Upper Colorado River Endangered Fish Recovery Program and the San Juan River Basin Recovery Implementation Program as authorized by Public Law 106–392. These two successful ongoing cooperative partnership programs involve the States of Colorado, New Mexico, Utah, and Wyoming; Indian tribes; Federal agencies; and water, power, and environmental interests.

The requested Federal appropriations are critically important to these efforts moving forward. The past support of your subcommittee has greatly facilitated the success of these multistate, multiagency programs. I thank you for the subcommittee's past support and request the subcommittee's assistance for fiscal year 2013 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

PREPARED STATEMENT OF THE UTE MOUNTAIN UTE TRIBE

Dear Chairwoman Feinstein and Senator Alexander: I request your support for an appropriation for fiscal year 2013 of $8,387,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region, consistent with the President's recommended budget. Substantial non-Federal cost-sharing funding is occurring pursuant to Public Law 106–392, as amended. This appropriation will allow continued funding in fiscal year 2013 for the Upper Colorado River Endangered Fish Recovery Program and the San Juan River Basin Recovery Implementation Program as authorized by Public Law 106–392. These two successful ongoing cooperative partnership programs involve the States of Colorado, New Mexico, Utah, and Wyoming; Indian tribes; Federal agencies; and water, power, and environmental interests.

The requested Federal appropriations are critically important to these efforts moving forward. The past support of your subcommittee has greatly facilitated the success of these multistate, multiagency programs. I thank you for the subcommittee's past support and request the subcommittee's assistance for fiscal year 2013 funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

PREPARED STATEMENT OF THE UTAH WATER USERS ASSOCIATION

Dear Chairwoman Feinstein and Senator Alexander: I request your support for an appropriation for fiscal year 2013 of $8,387,000 to the Bureau of Reclamation within the budget line item entitled "Endangered Species Recovery Implementation Program" for the Upper Colorado Region, consistent with the President's recommended budget. Substantial non-Federal cost-sharing funding is occurring pursuant to Public Law 106–392, as amended. This appropriation will allow continued funding in fiscal year 2013 for the Upper Colorado River Endangered Fish Recovery Program and the San Juan River Basin Recovery Implementation Program as authorized by Public Law 106–392. These two successful ongoing cooperative partnership programs involve the States of Colorado, New Mexico, Utah, and Wyoming; Indian tribes; Federal agencies; and water, power, and environmental interests.

The requested Federal appropriations are critically important to these efforts moving forward. The past support of your subcommittee has greatly facilitated the success of these multistate, multiagency programs. I thank you for the subcommittee's past support and request the subcommittee's assistance for fiscal year 2013

funding to ensure the Bureau of Reclamation's continuing financial participation in these vitally important programs.

PREPARED STATEMENT OF THE WYOMING STATE ENGINEER'S OFFICE

Dear Chairwoman Feinstein and Ranking Member Alexander: This letter is sent in support of fiscal year 2013 funding for the Bureau of Reclamation's (BOR) Colorado River Basin Salinity Control Project—Title II Program. A total of $14,500,000 is requested for BOR's fiscal year 2011 activities to implement BOR's Basinwide authorized Colorado River Basin salinity control program. Failure to appropriate these funds will directly result in significant economic damages being accrued by United States and Mexican water users.

The State of Wyoming also supports funding for Salinity Control Program general investigations as requested within BOR's Colorado River Water Quality Improvement Program (CRWQIP) budget line-item. It is important that BOR has properly-funded planning and administration staff in place, so that the program's progress can be monitored, necessary coordination among Federal and State agencies can be accomplished, and future projects and opportunities to control salinity can be properly planned. Maintaining the Colorado River water quality standards for salinity is essential to allow users in the seven Colorado River Basin States to continue to develop Compact-apportioned waters.

In addition to the funding identified above for the implementation of BOR's program, the State of Wyoming urges the Congress to appropriate funds, as requested by the administration, to maintain and operate completed salinity control facilities, including the Paradox Valley Unit. At facilities located within the Paradox Valley of Colorado subsurface saline brines are collected below the Delores River and are injected into a deep aquifer through an injection well. The continued operation of this project, and the Grand Valley Unit, are funded primarily through the Facility Operations activity.

The Colorado River provides municipal and industrial water for nearly 33 million people and irrigation water to approximately 4 million acres of land in the United States. The River is also the water source for some 3 million people and 500,000 acres in Mexico. The high concentration of total dissolved solids (e.g., the water's salinity concentration) in the water limits users' abilities to make the greatest use of this water supply. This remains a major issue and continuing concern in both the United States and Mexico. The water's salinity concentration especially affects agricultural, municipal, and industrial water users. BOR presently estimates direct and computable salinity-related damages in the United States amount to more than $300 million per year.

The Environmental Protection Agency's (EPA) interpretation of the 1972 amendments to the Clean Water Act required the seven Basin States to adopt water quality standards for salinity levels in the Colorado River. In light of the EPA's regulation to require water quality standards for salinity in the Basin, the Governors of Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming created the Colorado River Basin Salinity Control Forum as an interstate coordination mechanism in 1973. To address these international and regionally important salinity problems, the Congress enacted the Colorado River Basin Salinity Control Act of 1974. Title I addressed the United States obligations to Mexico to control the River's salinity to ensure the United States water deliveries to Mexico are within the specified salinity concentration range. Title II of the act authorized control measures upstream of Imperial Dam and directed the Secretary of the Interior to construct several salinity control projects, most of which are located in Colorado, Utah, and Wyoming.

Title II of the act was again amended in 1995 and 2000 to direct BOR to conduct a basinwide salinity control program. This program awards grants to non-Federal entities, on a competitive-bid basis, which initiate and carry out salinity control projects. The basinwide program has demonstrated significantly improved cost-effectiveness, as computed on $1 per ton of salt basis, as compared to the prior BOR-initiated projects. The Forum was heavily involved in the development of the 1974 Act and its subsequent amendments, and continues to actively oversee the Federal agencies' salinity control program efforts.

During the past 38 years, the seven-State Colorado River Basin Salinity Control Forum has actively assisted the Federal agencies, including BOR, in implementing this unique and important program. At its October 2012 meeting, the Forum recommended that BOR seek to have appropriated and should expend $14,500,000 through its Basinwide Program for Colorado River Basin salinity control in fiscal year 2013. We strongly believe the combined efforts of the salinity control efforts

of BOR, Department of Agriculture, and the Bureau of Land Management constitute one of the most successful Federal/State cooperative non-point source pollution control programs in the United States.

The State of Wyoming greatly appreciates the subcommittee's support of the Colorado River Salinity Control Program in past years. We strongly believe this important basinwide water quality improvement program merits continued funding and support by your subcommittee. Thank you in advance for inclusion of this letter in the formal hearing record concerning fiscal year 2013 appropriations.

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